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JEANNETTE WINTER HALL

GIRLHOOD AND ITS PROBLEMS

The Sex Life of Woman

By WINFIELD SCOTT HALL, Ph.D., M.D.

Member Medical Faculty Northwestern University, Chicago; Member Volunteer Medical Service Corps, U.S.A.; Fellow of the American Medical Association; Fellow of the American Academy of Medicine; Fellow of the American Association for the Advancement of Science.

AUTHOR OF

"Youth and Its Problems," "Text-Book of Physiology," "Manual of Experimental Physiology," "Nutrition and Dietetics," "Reproduction and Sexual Hygiene," "From Youth into Manhood," "Sexual Knowledge," etc., etc.

IN CO-OPERATION WITH

JEANNETTE WINTER HALL

AUTHOR OF

"Life's Story," "First Five Hundred Days of a Child's Life," "Primer of Physiology," in New Century Series; "A Marvelous Community," in "Pictured Knowledge," etc., etc.

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DEDICATION

That the Young Woman may find here an Answer to her unexpressed Questions; the Wife be guided safely through the new paths of Married Life; and the Mother be helped to realize the joys of Happy Maternity is the hope of

THE AUTHORS.

Berwyn, Illinois,
March, 1919.

PREFACE

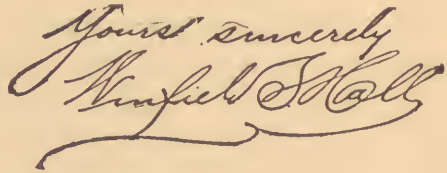
Our young men are returning from military service well instructed regarding most life problems. A large proportion of them are planning to establish homes at an early date. Hundreds of thousands of homes will be started during the first year of peace. Our young women have worked as loyally as have our young men to win the war and they have waited as patiently as have the young men the return and the taking up of normal peace-time activities.

Every normal young woman wishes to be a home-builder,—a wife and mother. By the time a girl has reached her middle teens her mind is filled with questions about life. Many of these questions are never answered. Perhaps through diffidence they were never really asked of anyone who possessed the information to give a satisfactory answer. Every girl should be fully instructed by a loving, sympathetic, wise mother. Girls who are so fortunate as to be thus led into the joys of ideal womanhood are thrice happy.

Girls not so instructed may grope their way blindfolded into womanhood, stumbling where their steps should be secure and wandering into byways when they should keep to the narrow path. Such experiences are due to innocence and ignorance,—the poor child "didn't know."

This book is prepared by a teacher-mother and a physician-father as a guide for girls, young women, young wives and young mothers; answering their questions and giving instruction which should guide the young woman into healthy, happy wifehood and proud, efficient motherhood.

Berwyn, Illinois,
March, 1919.



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PART ONE

SOCIAL ETHICS

CHAPTER I

The Meaning of Social Ethics

The term Social Ethics is a comparatively new one. Its significance is so evident on its face that it hardly needs definition. One assumes that it refers to the right and wrong of social relations, and that is just what it does signify. While Sociology is the science of human society, and ethics the science of the right and wrong of human activities, Social Ethics may be defined as the ground common to ethics and sociology. In short, it deals with the right and wrong of social relations in human society.

In order systematically to present this matter, it may be stated that Social Ethics concerns three planes of human activities and relationships. First, the personal plane,

which deals with and sets forth personal conditions, personal attitudes and personal habits, which form the basis of, and give the trend to, the social relations. While the activities in this plane might seem not to be social, as a matter of fact, they are basic in their relation to the social, and must be considered in this connection. Second, the family plane, which deals with and sets forth family relationships in so far as they concern ethics and society. Third, the social plane, which deals with the right and wrong of social relationships in human society outside of the family.

Social and domestic happiness and well-being are so indissolubly linked with ethical standards, ideals and practices, that it becomes absolutely essential that all those constructive forces of society pledged to conserve and protect society be marshalled against social wrongs and reinforce social good.

Expressions which have been frequently heard in the last decade, as the "social evil," "venereal peril," etc., indicate the preponderant social wrong from which society suffers, and the predominant retribution which Nature seems to mete out against this wrong. As a

matter of fact, *a very large part of ethical u. ng living has to do with the sex life*, usually manifested in all the three planes mentioned above, namely, personal, domestic and social. While it is true that the venereal peril menaces the innocent, as well as the vicious it is also true that if all people would live absolutely clean and correct sex lives for two generations, venereal disease would become as rare as smallpox or cholera, while now it probably *affects in smaller or greater degree, at least fifty per cent. of the whole population.* These millions suffer, either innocently or otherwise, for the sins of others or for their own shortcomings, the saddest cases of all being those who suffer the results of inherited taint.

If we may rely upon statistics, the social evil is getting worse rather than better. Even the optimist must admit this, and while he sees commercial, industrial and political conditions improving step by step, he is forced to admit that social conditions are getting worse. We do not have to look far for the cause.

Our population is increasing most rapidly in the great urban manufacturing centers; large regions of our rural districts barely

holding their own in population during the last generation, some actually decreasing. If this centering of the people in great cities and rapidly growing towns could have been controlled, the ills and wrongs might have been largely avoided, but they were not controlled; in fact, we are only now discovering the unfortunate tendencies which have been at work. People have crowded together in such close proximity that vegetation is crowded out and breathing spaces contracted. Furthermore, in large districts of our larger cities, the housing of the people is shockingly bohemian. Where a whole family—parents, grown children, adolescents and younger children are housed in one room, which one room must serve as kitchen, laundry, dining room, parlor and sleeping room, it goes without saying that young people growing up under such conditions are likely to lose, or rather never experience, the sentiments and feelings associated with modesty and refinement.

Young people in our great industrial and commercial centers are crowded together in the department stores, shops and factories under conditions that are not only unsanitary

and unhygienic in many cases, but at the same time may be unwholesome from a social standpoint. After their eight or nine-hour day under these undesirable conditions, we can easily understand why the young people should be led to seek entertainment and recreation from their mechanical and unstimulating shop work at the same time they seek escape from the wretched home conditions. We are, therefore, not surprised to see them flocking to the cheap vaudevilles and moving picture shows, and to the public dance halls, where they are likely to be subjected to destructive suggestion that will tend to rob them of what little of right standards remain after the effects of their home and shop influences have done their work. Summarizing then, we find that the destructive influences of urban conditions in the housing of the people, in the employment of the people, and in their recreative activities are tending more and more to lower social standards. If conditions are not changed, social dissolution will surely follow in a few generations.

These unfortunate conditions mentioned

above menace the home. Now, *the home is the foundation of human society.* There could be no Church; there could be no State; there could be no Educational System without the home. If the home,—the foundation of human society,—crumbles, the whole superstructure would come down in ruins, and we would have social anarchy.

But this is not to happen. There is a general awakening. We have been analyzing conditions, diagnosing the social disease. We have determined its etiology. Having found its cause, the rational treatment has already been begun.

A study of the social conditions makes it evident that *a vast preponderance of social ills are visited upon the people because of ignorance.* Little children fall into error because they have not had the benefit of wise counsel and guidance. Young people make blunders because they are ignorant of personal physiology and hygiene. Older people through ignorance or indifference need education and awakening. The writer believes that *the only rational cure for present social conditions is to be found in education.* Wise laws, justly and

firmly administered, will help. Public institutions for the reclaiming of the fallen will also help. These two measures last named alleviate in a superficial way only. What we must seek to accomplish is to remove the cause, so that these ills will not exist, and therefore not need alleviation. In the social evil as well as in the drink evil, *it is necessary that the education*,—the rational prophylaxis of the evil,—*be begun in youth.* It is very much easier to keep a young life straight than it is to make it straight once it has become bent and distorted. Let us then emphasize again the paramount importance of education as the great prophylactic agent to protect society from the ills that follow wrong living.

Inasmuch as the difficulties to which we have referred begin in childhood and youth through innocence and ignorance, it must be evident that the education must begin in youth. Those who have given this problem extended study and thought all agree that education in social ethics is a *home problem. Parents must teach their children the great truths of life.* Coming from parent to

child this teaching will be certain to have its two great essentials, namely, sincerity and sympathy. However, we find that a very small proportion of the present generation of parents possess either the requisite information or the necessary inclination to give this instruction.

There must be a transitional period, during which educators, social workers and all the constructive forces of society work together to produce a generation of parents who will possess both the information and the inclination. That means that we must go into the schools and teach the great truths of life to these children and youths. In this great work for society, let us never lose sight of the fact that we are doing this work in our relation of vicarious parenthood. We must school ourselves to feel toward these young people as a parent feels toward his child. The instruction must be given in all seriousness, candor and simplicity. *It must be put on the plane of the ideal.* There should be an attitude of sympathy toward the pupil. Those who have not had experience in this teaching can hardly conceive how beautifully the

young people respond in their intense attention, and in the seriousness with which they receive the instruction.

The education of youth in this transitional period should begin in colleges and universities. It may be said in passing that a considerable number of our institutions of higher learning have already made a good start in this teaching. We may look forward with assurance to a time in the near future when all these institutions will recognize their obligation in this direction and will have this instruction given systematically.

Instruction in social ethics and sexual hygiene must also be introduced into the high schools. Most high school pupils are in the earlier period of adolescence. The need for instruction is at no period of life greater than at the threshold of adolescence. The response of the pupil is at no period of life more ready or wholesome. It is, therefore, a matter of the greatest importance that instruction in social ethics and sexual hygiene be introduced into all the high schools of the land at the earliest possible day.

Pupils in the grammar schools need certain

facts brought to their attention, and this need is hardly less imperative than is the need in the high schools. The girls of the seventh and eighth grade are, as a rule, coming into adolescence. Probably a large majority of eighth grade girls in general are in their first or second year of puberty. Their mind is filled with questions about life, and they instinctively show a sort of hypersensitiveness on sex matters. Their mothers have, as a rule, not instructed them. The schools must do it. The problem of the grammar school boy, while less a sex problem than one of inherent barbaric vulgarity, is still one that requires great tact, patience and skill on the part of the teachers. The seventh and eighth grade boy is still in his pre-adolescent period, still in his period of barbarism. He has not felt the primordial urge in his red blood, but he does show the barbaric tendency to crudeness, rudeness and vulgarity. While we are not going to lose our patience with this boy, nor are we going to become discouraged about him, we are going to extend to him from our elevated position of twentieth-century chivalry a sympathetic helping hand that will

guide him quickly through his storm and stress period and help him early to step up out of barbarism into his period of dawning chivalry.

This teaching in the grammar school requires incomparably greater tact and pedagogic skill than the teaching in colleges. It must be done by trained teachers. Professional people, either physicians or social workers called in from the outside, cannot do this work for the simple reason that the number of physicians and social workers who possess the pedagogic skill, and knowledge of, and sympathy with, child life is wholly inadequate to meet the requirement, even if they were to devote their whole time and energy to it. Besides that, the psychic effect on the pupils of calling in somebody from the outside is unwholesome and studiously to be avoided. It enshrouds the whole matter in a mist of mysticism and excites the curiosity and a tendency to talk among themselves with great danger of unwholesome results. This teaching of the great truths of life concerning reproduction and sex must be done by the teachers of the grammar school. But

the teachers of the grammar school are not prepared, either in their own mental attitude, the information they possess, or in their pedagogic training. The whole field of sex is to a vast majority of teachers a *terra incognita*. For a period of four or five years before we require sex instruction in the grammar schools, the subject of social ethics, social hygiene and sexual hygiene should be taught in the Normal schools.

The Normal school course in social ethics should accomplish three very clearly defined objects. First, to give the pupil teacher a wholesome viewpoint concerning social ethics in all its bearings, displacing false modesty with real modesty and leading the student from the dimly-lighted valley of prudish ignorance to the high sun-bathed mountain tops of idealistic virtue. Such a change of mental attitude is wholly and solely a matter of education and is the first thing to accomplish for the pupil teacher. Second, to give the pupil teacher adequate information concerning the biology of reproduction, the physiology and hygiene of the sex apparatus and sex life, also the sociological and ethical

principles involved in sex hygiene and social ethics. Third, to train the pupil teacher in the principles of pedagogy of this particular subject. It may be stated in passing that the teaching of no subject requires greater pedagogic skill and tact than this one. In the presentation of no subject does the teacher require a greater knowledge and insight into the psychology of youth than is required in the teaching of sex hygiene.

After all of the Normal schools of a State have had a course in sex hygiene and social ethics presented to every student in the school for a period of four or five years, it may be wise, and the time may be ripe, to require this teaching in the grammar schools, because by that time there will be many hundreds of teachers in the State who will have been trained for this teaching, and the probabilities are strong that almost every village and city school will have on its corps of teachers, from one to a half dozen who will have had the benefit of this instruction in the Normal school, and who will be prepared to give this instruction in an acceptable manner.

CHAPTER II

Instruction in the Home

Answering the question when and how shall this instruction be given in the ideal case, let us repeat what was stated above that this is *a home problem.* Fortunately, Nature points the way with a great shining index. Nature has implanted in the heart of every child the instinct of asking questions. The mother and teacher have only to answer these questions when they are asked; answering briefly and simply, and always in a spirit of sympathy and love, to rest assured that they are following the plan of Nature, and if the plan of Nature, then the plan of the God of Nature.

The first question asked by the child is almost certain to concern its origin. The little five-year-old girl creeps into mama's lap at eventide, and nestles her head on mama's breast, and asks: "Mama, where did you get me?" Then she waits for mama's

answer. No real mother, under such circumstances, could bring herself to the point of telling the "stork story" to the child. Such a response to such a question would be unworthy the twentieth-century mother. You may be interested to know what one twentieth-century mother told her child in response to a similar question. Her little six-year-old boy was brought to his mama's bedside and introduced to his two-day-old baby sister for whom he had watched and prayed for several months. He was very happy; God had answered his prayer; presently he asked: "Mama, where did the baby come from?" This was the mother's answer: "Baby sister came out of mama's body; she was formed from materials drawn out of mama's blood, and that is the reason why mama's cheeks are so pale and mama's hands so thin and white." The little boy's eyes opened wide with wonder. This story was to him incomparably more wonderful than the stork story would have been. He looked thoughtfully from mama's pale face to the little baby sister, back and forth several times. Then he asked this question: "Mama, was I

formed within your body, too?" The mother answered, "Yes, my boy, you were. You were formed within mama's body, you were formed out of mama's blood, and that is the reason why mama loves her boy so, because she gave her own life's blood for him." The little boy's eyes now took on a far away look, and he seemed to be trying to grasp the great thought of mother sacrifice. He evidently did catch at least a glimmer of the great truth, because after a few moments his eyes welled full of tears, and turning to his mama, he threw his arms about her neck and said, "Oh, mama, mama, I never loved you so much before," and the little boy meant it, too, because from that day forth for many weeks he seemed to think of little else during his waking hours than what he could do to help the mother who had been so ready to sacrifice for him. This happened several years ago. The boy of six has now grown into the young man of twenty,—stalwart, broad-shouldered, deep-chested, hard-muscled, clear of eye, clean of life and chivalrous. He must be the pride of his father's heart, and the joy of his mother's heart. He

is a neighbor of mine, and I have watched his development with great satisfaction. His attitude towards all womankind seems to be inspired by instincts of chivalry and honor. That this attitude has been developed by the teaching which his mother has given him from boyhood up, supplemented perhaps by some instruction and example on the part of his father, no one can doubt. Can there be any question, that when the time shall come, that all boys and young men will have been led into chivalrous young manhood in a similar way, and when all girls and young women will have received from their parents a training which will give them a reciprocal attitude towards menkind, then the social problem will have been solved. *Its solution is a matter of education, pure and simple, and this education must begin in early childhood.*

The next question which the child asks, as a rule, concerns the physical differences between the sexes. Your little six or seven-year-old girl may come with the question as to how the mother knows whether her new-born baby is a boy or a girl. This is a fair question and must be answered; otherwise,

a suspicion of mystery is at once aroused and a gnawing curiosity is developed. The wise mothers in all generations have adopted a very simple method of forestalling this question, and presenting in the family, conditions which answer the question in the most natural and simple way. I refer to the custom adopted by the wise mothers in all generations of having the little children of the family meet in the nursery at bedtime at least one evening in the week in what some mothers call an "undress parade." Other mothers call it a "bath night frolic." The little boys and girls of the family ranging in age between two and seven or eight, enter into these frolics with the keenest and most unalloyed pleasure. Never so free of movement, never so happy, and it may be said in passing, never more modest than when freed from the hampering habiliments with which civilization has clothed us. As recently as four thousand years ago, our ancestors were practically nude savages living in the forests of Southeastern Europe and Western Asia. They were children of Nature, and like these babies of our twentieth-century Aryans, so far from being immodest

in their nudeness, possess what the sociologist recognizes as absolute modesty, that is, modesty so perfect that in the nude they are unconscious of their nakedness.

Incidentally, little six-year-old Margaret is almost certain to note a difference between herself and little Mary, on the one hand, and Jimmie on the other, and will remark in her childlike innocence to her mama, "Little Jimmie isn't made the same as Mary and I, is he, mama?" And the mama will answer in a perfectly matter-of-fact tone, "No, little Jimmie is made like all boys and men, while you and Mary are made like all girls and women." This answers the question for all time, so far as Margaret is concerned. In their turn each of the other children will ask similar questions or make similar remarks to be answered in the same matter-of-fact way, and so grow up without morbid curiosity regarding structural differences between the sexes. If some of you are worrying about Margaret's modesty, let the writer assure you from the uniform experience of hundreds of mothers with whom he has conferred, that when Margaret reaches the age when impulses and instincts of mod-

esty usually appear in a girl, they will dawn in the soul of Margaret as naturally as the rose in the garden blooms in June. If a girl grows up in the atmophere of modesty and consideration, the atmosphere being determined by the mental attitude and the habits of the older people of the family, rest assured that when she approaches puberty, the instincts and feelings of modesty come into her experience as a natural and inherent heritage of our race.

When the children approach puberty, there should be a parting of the ways for the girls and the boys of the family, the girls coming into a closer comradeship with the mother, while the boys are led and inspired by the father. It is the inherent right of every girl to be led into beautiful exultant womanhood by a loving mother, as it is equally the inherent right of the boy to be led into clean, aggressive, triumphant manhood by a fond father.

As the mother sees her daughter growing rapidly in stature at the age of twelve to fourteen, and recognizing that this sudden growth in stature heralds the approach of womanhood, the mother seeks an oppor-

tunity to instruct her daughter in the ideals of womanhood, giving her the facts that she needs to know to guide her through the many problems, personal and social, that confront the adolescent. There are three important lessons that the wise mother teaches her daughter.

The first lesson for the girl to learn is the "*Story of Womanhood.*" The mother may picture the typical twelve-year-old girl in all her lean and lank, awkward and gawky clumsiness, self-conscious, ungainly and unprepossessing in the highest degree. This preadolescent girl is in her "ugly duckling" stage of development. Now let the mother picture what the girl is to be in four or five short years. Graceful in figure, graceful in every movement of her body, possessed of poise and repose, her rosy cheeks glowing with the red blood of good health, her lustrous eyes luminous with the light of radiant young womanhood. Then the mother reveals to the daughter the secret of this remarkable change and tells her how, when the little girl was about thirteen years of age, her ovaries began to prepare a wonderful substance that

was absorbed into the blood, and through the blood distributed all over the body where tissues were growing and changing, and that this wonderful substance—this magical stimulus—formed in the body for that purpose, caused the remarkable transformation in the girl's body, and no less remarkable a change in her soul, possessed as it is, first, of *purity;* that matchless quality that runs like a golden thread through the whole fabric of her life; second, of *altruism* or unselfishness; that second great quality of the soul of woman, also of other hardly less beautiful qualities that make her soul so beautiful that, when once it is really seen, one is after that hardly conscious of her body, however perfect that may be. The mother explains to her daughter, that this great change, which is the first step of developing womanhood, is due to a substance formed in her ovaries,—formed in her sex apparatus.

When the girl knows this great truth, from that day forth she naturally looks upon her sex apparatus as *sacred to her womanhood*, and a few words of counsel from the mother will guard the daughter against ever permitting

or indulging anything that will irritate or excite this part of her body, being assured that such irritation and excitation will disturb the great work, which, in the plan of the Creator, her sex apparatus must do for her womanhood.

The second lesson which the mother teaches her daughter is a simple, clear explanation of the monthly period which is soon to be a part of the daughter's experience. She forestalls fears and forebodings by explaining to the daughter that this experience, which may be difficult at first to adjust herself to, is, in the plan of the Creator, her preparation for future motherhood. As this healthy-minded, perfectly normal, twentieth-century girl is looking forward to future motherhood, as a natural and much-to-be-desired experience, her mother's explanation is accepted in the right spirit and the girl looks forward with confidence and serenity toward her approaching estate of womanhood. When it comes, all its experiences are accepted as a matter of course, and in a spirit of pride and confidence.

The third lesson which the mother teaches

her daughter concerns her relation to her young gentlemen friends. Even though a girl may not formally enter society until she graduates from high school, she is in reality in society as soon as she enters high school. Adolescent high school young people are experiencing the social impulse and yielding to the social instinct. The relations of young people in the high school are in all seriousness social relationships, and should be so viewed by all who have any relation to secondary education. So the girl's mother prepares her early for this new relationship by explaining to her the ideal social relations between young women and young men of her circle. The information that the mother has given her daughter in the first two lessons makes it very evident to this budding woman that, her person being sacred to her womanhood, she should not permit any familiarities on the part of her young men friends. Parents and teachers, perhaps through the organized agency of a Parent-Teachers' Association, will cordially co-operate in the bringing about of ideal social conditions in the high school. All gatherings of high school young people will

be chaperoned. This chaperonage should be as wise and tactful as it is constant.

* * * * * *

It is the inherent right of every boy, particularly between the ages of ten and fourteen, to have the guidance and the inspiration of his father. During this stage of a boy's development, the pre-adolescent stage, the boy is living over again, in his psychic and social development, that period of his race when his ancestors were in a barbaric stage of civilization. So the boy of ten to fourteen is in a way a barbarian. He may be cruel and vulgar, he is sure to be blundering and blustering, especially if he is a really, healthy, normal boy. His mother and his woman teacher are taxed to the limit of patience with this young barbarian. It is the time of his life when he needs the firm, kind hand, perhaps the strong arm, of a man to guide, inspire and control him. Boys of this age should have the benefit, not only of a father's influence, but also of the influence of a man teacher, and perhaps in addition to this the help of boy leaders in Y. M. C. A. or Boy

Scout work. The boy is in his age of hero worship. The robust, the sturdy, the daring, the belligerent experiences and exploits of men appeal to him. He quickly scans the pages of history and picks out his heroes. All of his heroes are fighters, war and the chase are in his blood. Those qualities of his father that appeal to him and lead him to put his father's name on his list of heroes, are not the qualities that appealed, and still appeal, to his mother to inspire her love and confidence, but they are the qualities of barbaric heroism,—those qualities of physical agility and endurance which helped his father to win athletic victories and break athletic records. They are the qualities that were developed and fostered in war and the chase. So the wise father, the twentieth-century father, becomes a chum of his boy not later than his tenth year. He cultivates a real live interest in his boy's activities and aspirations. He attends the track meet between his boy's school and the neighboring schools, acting as referee, umpire or judge on the occasion. He takes half holidays during the summer vacations to join the boys in their

ball game in a vacant cow pasture. He goes on short camping trips with his boy and on many a long tramp. In these ways he and his boy become chums, comrades in war and the chase. It makes the boy more mature and thoughtful, more self-reliant and confident, while it rejuvenates and rests the father. Once the boy's confidence and love are inspired, the father sets about systematically to give him three great lessons in life; beginning his instruction where the mother left it off.

The first lesson which the father teaches his son is *the story of manhood* and *the secret of virility*. He describes what it means for a boy to grow into a man, and how, after a brief period of lank, awkward, self-conscious clumsiness, the boy develops masses of muscles on shoulders and chest, upper arms, forearms, back, hips, thighs, legs. When these muscles come under the control of his will, as they should in his later teens, he will have received from mother Nature "the three B's" of young manhood, namely, Bone, Brawn, Brain, so that at eighteen years of age, the young man should be able to stand

out before the world, broad-shouldered, deep-chested, erect, supple, hard-muscled, fiery-eyed and resourceful, full of initiative and will power, ready to get into the world's work. Thus the father tells him the "*Secret of Manhood*," and explains about the internal secretion that is prepared in the boy's testicles from his fifteenth year on, and that this internal secretion absorbed into the blood and distributed throughout the body, causes the development in the youth, of all these qualities distinctive of virile manhood. Deprived of these sex glands, the boy would develop, first, into a sissy, and finally at twenty-five he would be a slope-shouldered, narrow-chested, flabby-muscled, beardless, squeaky-voiced molly-coddle, absolutely lacking in every instinct and attribute of manhood. When the boy hears this from his father, he readily understands that his sex apparatus is sacred to his manhood, and that he should never do anything to irritate or excite that part of his body for fear of disturbing Nature's plan for his development of all the matchless qualities of manhood.

The second lesson, which the father teaches

his son, is a simple, clear explanation of the nocturnal emissions or so-called "wet dreams." The father explains that every two to four weeks a liquid will flow away from the boy's sex apparatus. This usually happens when the boy is sound asleep. He suddenly awakens to find that he has had a "wet dream." What has happened is a very simple little physiological phenomenon that is perfectly natural and simply means a relieving of local tension. All the boy needs to do about it is to forget it and pay no attention to it. However, it is very important that the boy understands about this experience, which will be periodical and may last for many years; otherwise, he is likely to worry about it, and think that he is subject to a sexual weakness. Not only do young men frequently misunderstand this matter, but it is frequently misunderstood and misinterpreted by others. It is just as right and proper for the young man's mother to understand this phenomenon in the sex life of her son as it is for the father to understand about the monthly period of his daughter.

The third lesson, which the father teaches

his son, concerns social relationships with his girl friends. Helped by a little wise guidance and instruction from his parents, the boy readily adapts himself to the impulses of chivalry, which are stirring in his breast. While these impulses are of inestimable value in developing the highest social qualities, they need guidance. It is the unguided and unschooled social instinct that leads the young men to make advances toward familiarity in his relation with his girl friends. The impulse to protection when unguided would prompt him to put his arm about his girl friend. The same impulse under guidance inspires in him the attitude and the daring of the chivalrous sixteenth-century knight doing homage to a lady of the court, ready to endanger his life to protect her, and ready to fight to the death in defense of her name and honor.

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Where parents and teachers co-operate to teach the youth these great lessons of life, we insure the conservation in the child, of those qualities that make for the fullest manhood and womanhood. Physical health is

preserved, and physical stamina developed. Physical poise is maintained, and the highest ambitions inspired in the fullest and best sense of the term. The youth of the race is conserved through this early and tactful teaching of the great laws of life.

LIFE PHENOMENA

PART TWO

LIFE PHENOMENA

CHAPTER I

Animal Instincts

Every animal is endowed by nature with several, perhaps many, instincts. One of the most universal instincts is the instinct for getting something to eat. The young of all higher animals begin to seek food within a few hours after birth. The young of birds will open their beaks for food within a few minutes after they have broken the shell that imprisoned them, and launch upon their new life.

This instinct that impels the young animal to seek food is only one of the several instincts, all directed toward self-preservation. The young of most animals have the instinct of secretiveness. Young partridges, on the

approach of any danger, will instinctively secrete themselves in the grass and leaves so effectively that one could look long and carefully at the very place where they are hidden without being able to see them. The young calf or the young fawn will drop into the grass, when warned by the mother, draw its ears close to its head, lie close to the ground, and remain effectively hidden from the observer, unless he stand almost directly over it.

One form of self-defense makes itself shown in the instinct to flee danger. Many young animals are equipped from their earliest hours of life with the power of flight. Even young fawns, within a few hours after birth, can run with prodigious speed and endurance. Presently, as an animal gains experience and gains in age and strength, the instinct of standing his ground and fighting becomes evident; and many animals will manifest this instinct comparatively young in life.

In these several instincts of hiding, fleeing and fighting, we have cited sufficient examples of the instincts of self-preservation and defense. The instinct of procuring nourishment, mentioned at first, is one which urges the

animal all through life to seek food. In the case of many animals, the food supply in the early days, weeks, or even years of life may be furnished by the mother or the parents. For example, the mammal mother, as the cow or horse or the human mother, furnishes her young with milk prepared in her own milk glands. The bird mother brings tender morsels as seeds and worms to her nestlings.

But after the first stages, the young must begin to seek its own food; the parents begin to withdraw their support, and the young must, either from prowess or strength, secure its own sustenance. The young bird must scratch for itself; the kitten must learn to catch its own mice; the young dog must learn to track and capture its own rabbits; the young lion must overtake and overcome its own prey; the young man must earn his own bread. This scratching for himself, this overtaking his own prey, this earning his own bread, is the best thing that can happen a young animal, whether that animal is a bird, a beast or a man, because this fight for existence makes his eyes keener, his muscles

more alert, and his teeth or claws or other weapons of war sharper and more effective.

Now, all these instincts discussed above, instincts common to all animals, if we consider them in their broadest relationships, are, without exception, directed to self-preservation. So the instincts of self-preservation are, first, those that have to do with the procuring of nourishment, and, second, those that have to do with defense against danger. All these instincts, however, that we have named, are devoted wholly to self. They are the selfish instincts. They are the instincts of individualism. The scientist calls them the *egoistic instincts*. In all these instincts of the animal, no provision is made for others; it is all self-centered. We can readily understand, as we consider the matter, that no animal is in a position to help others until he has first insured his own safety. A mother cannot give suck to her young until she has herself procured the material in the form of nourishment.

But a study of animal instincts in the broadest sense shows that there is another group of instincts just as deeply implanted,

and, while somewhat less important for the individual, are incomparably more important for the race than those already discussed. Reference is made to the instinct of procreation, the instinct of bringing young into being: On the part of female animals, the instinct of giving birth to young and caring for their young; on the part of male animals, the instinct of seeking to procreate or seeking alliance with a female animal, to mate with her, and of copulating with this female animal with a view to procreation,—with a view to bringing forth young. In the lowest animals, as well as in the plants, reproduction, and, to a certain rather limited extent also, nutrition and defense are more or less automatic; but the automatic phase of these instincts becomes less and less marked the higher we go in the scale of animal life. In the fish, for example, the instinct of the female, as she feels her body swell with the growing eggs within, is almost an automatic or a mechanical one, as she seeks a quiet little pool in a creek or a cozy little nook in a pond, and noses the bright pebbles together into a sort of little nest, where she deposits the eggs from her

ovaries. Similarly, it seems to be largely an automatic act, purely instinctive, and hardly with any show of forethought or desire on the part of the male fish, as he comes to this nest of a female of his species as thus prepared, and just filled with eggs, to spread over this nest and empty upon the just-deposited eggs the contents of his spermaries. These parent fish, having deposited eggs and spermatozoa,—eggs by the thousands and spermatozoa by the millions,—pass on to give no attention whatsoever to the young that hatch out a few hours or days later. These young, numbering into the thousands, must seek their own food, after the small egg yolk is consumed, and they live a more or less unprotected life, a prey to other fish, so that the chances are that not more than four to six of the thousands of young ever come to full adult maturity, thousands having been preyed upon by other and stronger predacious water animals.

When we advance in the animal scale to the birds we find evidences of conscious mating, as a rule, though in some species of birds that live in flocks, gregariously, rather

than in pairs, the mating is less evident. In the case of these gregarious birds that live in large flocks, as we study their habits, we note the tendency for the larger, stronger and better equipped males to monopolize several or even many females, while the weaker animals are fought away and kept from mating with the females. And this is advantageous, of course, for the race, because it insures this great advantage, that every young animal coming into life has a physically perfect male ancestor. This, of course, is a matter of no small importance to the species, and tends to maintain in the species all their finest qualities.

Among those birds that mate, it is interesting to note what is known among biologists as sex attraction. For example, the male birds, as a rule, possess certain striking qualities, either in beautiful plumage or in beautiful song, perhaps both. The females, as a rule, are less beautiful singers, and less gaudy in plumage. The males are active, actually courting the females. The females are modest, retiring little bodies who wait to be courted. They are strongly attracted to

those males that possess the finest qualities. During the mating period of a few weeks in the spring, the pairing off of mates is accomplished, and each pair seeks some secluded place to build its nest, and male and female birds work with great industry for days in the preparation of their season's home. The days devoted to the building of the nest are not wholly given up to the work-a-day life. They are courting continuously, and not infrequently during these days they are seen billing and cooing as they work. Once the nest is finished, the female bird begins daily to deposit an egg within it, and daily the male copulates with her, fertilizing these eggs as they pass from the ovary into the ovaduct. During these days of egg laying, the male bird is likely to devote himself to song, if they belong to species which possess this gift. The male bird sits near the nest where the female is depositing her eggs, and entertains her by the hour with bursts of song. If it is fine feathers and beautiful plumage that has commended him to his mate, he delights to parade these before her eyes as she sits demurely on her nest. He

may bring her occasionally, as a mark of his devotion, tender morsels that he has gotten from a neighboring garden. Once the full quota of eggs has been deposited in the nest, the mother bird enters upon the trying ordeal of incubating or hatching these eggs. This necessitates, upon her part, a great sacrifice. She must sit hour after hour, and day after day, upon these eggs for two or three weeks, and never must they be allowed to cool. Every day the eggs must be turned over. This she does very carefully with her beak. As a rule, the devotion of the male bird reaches its highest point during these days. He brings his mate, many times a day, nourishing and tender bits of food which he has procured in his foraging. Sometimes he may even condescend himself to keep the eggs warm for a half hour or so while his mate is off for a morning constitutional and to seek for herself some seeds and grubs in a neighboring field.

After the little birds are hatched, the parent birds devote themselves to the protection and the feeding of their ravenous little flock of nestlings for several weeks, until

these birds are able to leave the parent nest, when they are pushed out to look after themselves. Once the nestlings are out in the world independent of the parents, the mating instinct, the solicitude and devotion and sacrifice of self for the other, so touchingly and beautifully shown by the parent birds during the height of the mating and nesting season, begins to wane, and later in the season they may join in a general flock and almost, apparently, forget each other, as the birds wing their way in large gregarious flocks to the Southland to spend the winter. In the remating of the following season, they may choose other mates, though some birds apparently are mated for life.

When we study mammals, those hairy-coated animals that suckle the young, we find very similar conditions; that is, some of these animals are gregarious and live in large flocks or herds, the mating of the breeding season apparently being determined wholly by the aggressiveness and masterful fighting qualities of the males. Take a herd of range cattle, for example; the strongest bulls of the herd will fight away the weaker ones from

the cows that come in heat or rut, and copulate with these cows, mating with them for the day only, and on successive days with different cows as these come into the condition of heat. In that way, one great masterful bull, out of twenty bulls in a herd of a hundred cows, may easily sire twenty or thirty calves; and, of these twenty bulls, probably five will sire most of the calves, the weaker bulls having no access whatsoever to the females that are in rut, or at most serving only one or two cows out of a hundred.

The bulls are equipped by nature with admirable and awe-inspiring fighting qualities. In the wild state, these animals, and particularly the strongest bulls that have been most active in the breeding season and have sired the largest number of calves, will be the ones whose instinct impels them to protect the herd in case of danger. They will instinctively protect the cows and calves from an onslaught of wolves or other rapacious animals whose instincts lead them to stampede the herd in order to throttle the weaker members, as for example, the calves. On his part, the bull instinctively protects the herd

from such animals; and his natural equipment of sharp, strong horns fits him for meeting the pack of wolves, and, catching a wolf on his horns, he will disembowel it. It is the wolves, perhaps, that are stampeded, instead of the herd, the herd being protected by these splendidly equipped fighting animals, which are the natural defenders of the herd.

The buck deer, or elk, or the bull moose chooses a mate for life. This mate is protected against danger, and her favor is courted by her beautiful and splendidly equipped fighting mate. This family may be, and frequently is, increased by the addition of another, perhaps several does, whose mates have been killed by the hunters. This instinct of the doe to join herself to another male when her mate is killed,—a thing which happens not at all infrequently in the North woods,—accounts for the fact that many of the bucks are polygamists, having two or three mates.

While we do not see in these animals the poetic and beautiful traits of courtship and chivalrous gallantry that are so beautiful and attractive in some of the bird mates, we

cannot watch their traits without being conscious that there is a fidelity and devotion between these animal mates that may well serve not only to arouse our admiration, but compel our respect for the instinct which joins these mates together and holds them in a sort of family circle, each contributing his or her share to the well-being of their little group. The young are protected and cared for with a devotion and singleness of purpose that is beautiful and poetic, though we recognize it to be instinctive.

When we come to a consideration of these instincts of mating and procreation in the human species, we see it is only an extension of a deep, well-defined instinct that has come to man from the remote past. In man this instinct differs from that of the lower animals only in intensity. While in the lower orders of animals, as already set forth above, there is a certain degree of the automatic in all these adjustments; the higher we go in the scale, we can easily note a greater degree of independence of action, a greater degree of choice in mating, a greater degree of individual judgment, decision and reason in all

of the complex adjustments and adaptations of the animal life. When we come to the human species, we find the element of choice and the play of reason, judgment, and of individual temperament reaching its highest manifestation. But still, with all that, we notice the instinct of mating, the instinct of home-building, the instinct of reproduction or of bringing of young into being, the instinct on the part of the man to protect the woman, the instinct on the part of both parents to protect the young. The extent to which the man will sacrifice his personal comfort for the comfort and safety of the woman goes far beyond any limits reached by the lower animals. The limit to which father and mother will sacrifice themselves for their children, in the human species, is far beyond that reached by any of the lower animals.

Far back in human history, there is no question but that the human species was gregarious, and that the strongest men of a tribe, the greatest fighters of the clan, fathered the children, while the weaker men were pushed aside and perhaps even castrated and

made hewers of wood and carriers of water,—practically enslaved.

During later millenniums of human development, even in the most advanced nations, say during the last three or four thousand years, there has been a distinct advance in development from the gregarious and polygamous to monogamous mating, where one man courts and wins one woman for his wife, and becomes mated to her for life in the relation of marriage or matrimony. This monogamous mating, or mating of one man to one woman for life, has been generally recognized as of so important a nature for man's highest development that it has received not only the sanction and blessing of religious leaders of those advanced races, but it has become interwoven in the very fabric of religious rite and ceremony, of political law and order, of social custom and sanction, so that, to overstep this law of advanced society, brings down upon the offending member the heavy hand of the law, the ostracism of society, and the anathema of the church. This being so recent a condition in human society easily accounts

for the fact that now and then men and women, from some unbalancing of temperament, revert to the instincts of long ago; and so we find a tendency on the part of some to transgress this law of society and fail to live in fidelity to the monogamous union.

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Summarizing these facts regarding animal instincts, we may say that they are clearly divided into two distinct groups; first, those instincts directed toward self-preservation; second, those instincts directed toward the preservation of the race.

The first group are called the egoistic instincts, and the activities which result from these instincts are called the *egoistic activities* of life.

The second group, those directed toward the maintenance of a species, being activities for others rather than for self, are called the altruistic (from *altera*, others), and the activities which grow out of the altruistic instincts are called the *altruistic activities*.

As we study these wonderful instincts and natural impulses that have been implanted

in the lives, not only of men, but of all animals, we are conscious of the infinite wisdom of the Creator of all life. But for this instinct of reproduction, we can easily understand that those lower animals, in whom there seems to be no particular deep-seated affection between mates, and no consciousness of the sex act, would cease to engage in this act of reproduction, and their species would become extinct. It becomes evident, then, that the whole preservation of the species, in all the lower animals at any rate, depends upon this indelibly-planted instinct of reproduction.

In recent times, as men have studied these problems of society, they have become convinced that the race is more important than the individual. In fact, it is even stronger than that, in a statement of modern science. The individual is important only in so far as he influences the race and assists in the maintaining of the race. After all, it is the race that is the important thing; and we find that the individual is now accounted as having not more than secondary importance at the best.

When we consider that far-reaching im-

portance to the race of this instinct of reproduction and all production of young, we are prepared to find that Mother Nature very jealously guards this reproductive power, and lays a heavy hand of retribution upon any animal that, feeling some perverted tendency, departs from Nature's law and fails to regard as sacred these instincts and activities which are concerned in the maintenance of the race.

CHAPTER II

The Beginnings of All Life

Seeds and Eggs.—The mind of the child is full of questions about life. The questions should be answered truthfully. If the child cannot personally see the things described below, let his parents and teachers describe them in the following way:

In the early spring, as early as the first of April, let us go to the country and see the farm life. On the trees the leaf buds have swollen, the lilac buds have burst, showing their fresh green leaves; the fruit trees are already spotted with the color of the partially-opened blossoms and will soon be clothed in snowy white. The frogs croak a welcome from the pond, the birds cease their busy home-building long enough to thrill us with their song. What do all these spring signs mean? All things are growing, multiplying and replenishing. Every form of all this teeming life, plant and animal, is developed from eggs.

The seed of the corn, or the seed of the tree, is in reality the egg from which the new plant develops, just as truly an egg as the hen's egg, which we all recognize as such. It will repay us while on the farm to watch a mother hen. She gets up early, gets her breakfast by scratching busily in the scattered litter, and then quietly disappears. Let us quietly follow and we will find her cosily settled in a secret corner of an unused manger. The next day we go to the barn early enough to look into her nest while Mother Biddy is getting breakfast, and find she has already a round dozen of her beautiful white treasures. Each day she adds another until she has sixteen, and then she no longer leaves her nest except for a short time each day, but begins the long period of incubation. The farmer says the hen is "setting," and we know that she is keeping the eggs warm while they develop into chicks.

Just where the eggs come from is somewhat of a mystery unless we are so fortunate as to see the farmer's wife prepare a chicken for dinner. When she opens the body of the hen to remove the intestines and other internal

organs, she finds an ovary with eggs in all stages of development, from the little yellow balls, the size of a pin-head, to the full-sized egg yolk. Every female bird has an ovary, and within this ovary the eggs grow. The little yellow dots grow; no two are the same size, each larger than the other up to the largest one which is nearly the size of the yolk of an egg, in fact, it is the yolk of an egg. During the laying season, one of these egg yolks leaves the ovary each day and passes along the egg tube or ovaduct to the cloaca (an enlargement just inside the body), from which the egg is finally expelled when the hen "lays" it. But something very important must happen to it before it is "layed," if it is ever to develop into a chick. The egg must be fertilized. Every day the rooster deposits in the cloaca of the hen the fertilizing fluid which is made up of many minute, rapidly-moving bodies. These bodies wriggle up through the ovaduct and fertilize the egg yolk soon after it enters that tube. After being fertilized in the ovaduct, the egg-yolk receives the white portion and becomes enclosed within a membrane, and the whole

is further enclosed within a shell, which is first soft, but becomes hard as the shell reaches the cloaca. Each morning one of these eggs becomes complete, and the hen goes to her nest and leaves it there, continuing this until she has a nestful—from 12 to 16—when she stops laying and "sets" over them while they incubate. Shall we examine a hen's egg? It seems too bad to take the eggs which the hen mother has patiently laid, one after the other, in the nest, but if we are careful and take only half of them, she may not miss them. Let us wait until she has been setting on her nest one whole day, and then remove one egg and compare it with a fresh unincubated one. Hold the fresh egg in the hollow of the hand, crack the shell on the side with the handle of a pen knife, lift off the broken bits of shell with the point of the knife blade until a spot about an inch in diameter has been exposed; carefully remove the membrane and look at the egg yolk, plainly to be seen under the transparent white. Note the little circle about a fifth of an inch in diameter. This circle, called a germinal vesicle, is the germ of a

chick whose development was checked by the cooling of the egg when the mother hen left it in the nest. Lay the fresh egg down and take up the egg which the hen has kept warm for twenty-four hours. When the germinal vesicle is exposed, a marked change is noted. The area is no longer circular, but has become an oblong, two or three times longer than it is wide, and wider at one end than at the other. Two little ridges lie, side by side, down through the middle of the oval. These ridges mark the beginning of a new life —a young chick. After a second day's incubation, open another egg in the same way, and note that the oval area has doubled in size, the ridges have become more prominent, and have grown together in front, and closed over to form the head of the chick.

The third-day chick rests in a very greatly enlarged area, which covers most of the upper surface of the yolk, and shows little blood-vessels branching out from the lower surface of the chick. Just back of the head, on the under side, the heart may be seen beating regularly. Nature works so fast that on this third day from the first division

of the germ spot, one may actually count the heart-beats. A few drops of warm water dropped upon the embryo will increase the rapidity of the heart-beat, or a little ice water will decrease its rapidity.

On the fourth day, the egg you take from the nest shows a greater development of the circulation and shows the beginning of eyes, wings and legs. The eggs of all birds and of animals higher than birds, develop in just the same way up to this point, but on the fifth day a change takes place; the skin shows where the feathers are to be, and we know that without a doubt Nature is making one of the bird kind.

On the next succeeding days, we notice the decreased amount of bulk in the egg yolk. One would naturally wonder how the young chick eats and breathes during its three weeks of incubation. All it has to eat is the yolk and white of the egg. All it has to breathe is the air which passes through the pores of the egg-shell. These pores may be seen upon close examination. If they were closed with vaseline or varnish, the chick would die from lack of air.

The blood vessels which spread over the surface of the yolk absorb the yolk substance and carry it into the body of the chick. The white is absorbed in the same way.

On the twenty-first day, when all the stored-up food has disappeared, the chick picks a hole in the shell, breaks it open and walks out into a new world, and we say the egg has "hatched." The chick is wet and forlorn looking at first, but it soon dries off and the chick becomes fluffy and beautiful. The mother protects her chicks under her wings and shows them how to find their food.

Frogs, Fish and Turtles.—Having listened to the noisy croaking of the frogs for two or three weeks, we determine to find out what it is all about, and make our first entrance into frog society. Rubber boots being the proper thing for a frog reception, we are able to wade out into the pond. As we pass quietly along the edges, we hear frequent splashes as a frog jumps out into the pond from some unseen spot and disappears among the weeds that grow on the bottom of the pond. He emerges a few minutes later to take a breath of air, for frogs breathe by

means of lungs and can not stay long under water, even though they can stay ten times as long as a boy can. In a cool, secluded pool, shaded by willow trees, we see a group of big frogs with rounded bodies. These are mother frogs whose bodies are full of eggs. As we watch we see another mother frog whose eggs are pouring from the cloaca into the water, and as they pass out from the cloaca, they are being fertilized by a fluid from the body of a male frog. Now let us go to a warmer pool in the sunshine and look into one of the little nooks where a mother frog laid her eggs a week ago. It is swarming with tadpoles. Hundreds of these little wrigglers are swimming about, some as long as a pin, some half as long, and some of them still a jelly-like mass of eggs in which the tadpoles are just beginning to show their shape through the transparent egg. The mother is nowhere to be seen. She simply laid her eggs and left them to hatch and care for themselves. Without a mother's care, many of them become food for fishes, but even so a goodly number of them escape, grow in size, develop four strong legs, lose

their tails, and become frogs to repeat the history of their parents.

The creek which carries the water away from this pond is fed by springs and has many a pebbly shallow where fishes make their nests. Let us follow its course until we find a fish nest. Not having at hand twigs and wool, the fish mother uses what she has and builds her nest of pebbles. She selects a spot, collects pebbles by nosing them out of the ooze and mud, and gets them into a circle. If we approach quietly enough, we may see her resting just over her nest, pouring thousands of little orange-colored eggs from her cloaca. These eggs sink down until they rest among the pebbles. Hardly has she deposited the eggs, which pour from her ovaduct and her ovaries, before the male fish appears on the scene. He recognizes the nest of his own species—perhaps he helped to make it—and sees that the eggs have been deposited there, so he rests above the nest and pours his fertilizing fluid upon the eggs. This fluid sinks down into the nest and fertilizes the eggs, which begin at once to develop. Within a few days,

little fish will swim out from among the pebbles in flocks or schools, each hunting his own food from among the living plants and animals floating in the water, and many of them being sacrificed as food for larger animals. A very large proportion of all the little fish that are hatched become food for larger fish, only a few out of the thousands grow to maturity and take their place in the fish world.

Walking along watching the fishes and tadpoles, notice a little clear place in the sand somewhat back from the shore. Our eyes are directed to it by the clumsy turtle which is emerging from it. As she disappears, we see lying in the warm sand, almost covered by it, a white egg as large as a pigeon's egg, but alike at both ends. In picking it up we break the tender shell and find in the egg-yolk a young developing turtle. Having clumsily spoiled this egg, we search again in the nest and find under the sun-warmed sand several eggs which the mother has laid and left for the sun's warmth to hatch. If we wish to watch the turtles after they hatch, we must now fence them in with a frame

work partly embedded in the sand and covered with mosquito netting. This netting permits the sun's rays to continue to warm the eggs, but prevents the escape of the young turtles. At the end of a week or more of daily watching, we find a tiny little turtle crawling about in the sand. The next day there are two, the next day there are no more, but the day following two or three more appear. During the whole of the next week, there are no additions, so we lift the box and watch events. The little turtles, with unerring instinct, all shortly find their way to the water which they seem to recognize as home.

On the way back from our last visit to the turtle nest, we pass the big walnut tree. Under the tree we find a walnut. The walnut is similar to an animal egg, for it has its shell, which is filled with food material for the young thing which will grow within if the nut is placed where it has warmth and moisture. Real plant eggs called ovules are developed within the ovary of the plant very much as the eggs of the hen, the fish and the frog are developed in their ovaries. The

little seed ovule, sometimes no bigger than a pin-head, becomes fertilized by the fertilizing substance or pollen from the male flower and develops into the seed. Plant seeds differ from bird eggs in the extent to which this development has been carried. The nut represents a real plant whose thick leaves (the nut meat) are full of nourishment. The corn seed contains a little plant with root, stem and leaves surrounded by food for its growth. The bean consists of a plant with all its parts and the fleshy, seed leaves containing enough nourishment to last the plant during germination.

Kittens and Puppies—Calves and Colts—Babies.—The statement that all life comes from an egg is as true of higher animals as it is of lower animals and plants. Cats and dogs, sheep and goats, cattle and horses, and even babies, begin their lives as eggs, but such tiny, delicate eggs that if they were deposited anywhere outside of the body, they would surely be lost or destroyed. To prevent this loss, Nature provides a nest for such eggs within the body of the mother. This nest is called the womb. The tiny eggs

are prepared in the ovary, but instead of passing along the ovaduct into the cloaca and being "laid" like the bird's eggs, they pass into the womb, and are either expelled and lost or are fertilized and retained in the womb during all the incubating period. In the womb the egg is protected from all harm, and is kept warm and moist.

The fertilization of the eggs is accomplished while they are in the womb (or uterus), and no growth of the egg will take place without this fertilization. As soon, however, as it has been accomplished, the egg begins to develop. The time required to develop a perfect individual of any of these higher forms of animal life differs from two to eleven months. The kitten requires three months, the calf nine months, the colt eleven months for complete development. On every side, as we wander over the farm, we see the processes of life-formation and caring for the young. We see the mother cat lying contentedly in her cozy bed in the barn, purring while the little blind babies tug at her breast for their dinner. The farmer laughs at your distress over their blindness, and tells you

that they will see all right when they are nine days old. We see the wobbly-legged calf, poking his nose around his mother to find the full "dinner pail" which she has waiting for him. Perhaps the milk you drank for your own breakfast came from this same udder.

Some morning when you go to the orchard for apple blossoms to decorate the house, you will be delighted to find old Jess, the family horse, standing between you and the tall grass, where lies her little colt, which she is watching. You gain a better viewpoint by offering Jess some lumps of sugar, and she allows you to kneel beside her baby, and even to stroke its soft neck. Presently it gets up and walks with uncertain step to its mother, where it proceeds to get its dinner from her milk supply as the little calf did from his mother.

The farm is a veritable mine of knowledge. You begin to think over the wonderful things you have seen. Did you notice that all these animals, whose young develops within the body, are protected by a coat of hair, fur or wool, and are fed from the milk glands of the

mother's body? Such animals are called mammals.

After three delightful months of the free and happy out-door life of the farm, you go back to your city home, and what is your surprise when a nurse introduces you to a little baby sister only two weeks old. When baby cries, nurse, saying baby is hungry, carries her to your mother, who gives her a dinner from her own breast and you are overwhelmed with the greatness of the thought which comes to you that we, too, belong to the great animal kingdom and that baby sister, the little lambs and colts, and the kittens all come the same way. You ask your mother, "Was little baby sister formed from an egg, and did she grow within your body?" "Yes," says mother, "baby grew within mother's body, and for nine months mother was giving her life-blood to build up the little baby body, and now mother has milk in her breasts for baby to feed upon." You marveled at the loving sacrifice of a mother, and your heart filled with love for your mother, and in that moment you resolved that you will always love and protect your mother in every way you can.

Growing up.—The man, the horse, the ox, the dog, the robin, the turtle, the frog and the fish all start life in exactly the same way. That is, they all start from a tiny mass of living matter which is formed in the ovary of the mother. This mass of living matter is called an egg. The egg is fertilized or started on its development through the influence of another tiny mass of living matter which the father or male parent furnishes. After fertilization, the process from egg to maturity is a process of "growing up." The fish egg grows up into a mature fish with its scaly sides; the turtle egg grows up into a mature turtle inside of a hard shell; the robin's egg produces the red-breasted favorite of springtime, which builds his nest in our shade trees and rears his young before our very eyes; while the egg of the horse develops for nearly a year, hidden within the mother's body, after which it comes out into the world alert and active, able to walk and to run though only a few hours old.

The young of the human race, after three-quarters of a year spent within the mother's body, comes into the light of day, a seeing,

hearing, feeling baby, resembling its parents, but a very helpless little object, unable for many months to feed itself. In fact, for years the child requires the patient, watchful care of father and mother. First, to feed it and clothe it, while it is helpless; next, to feed and clothe it, during its inexperienced growth; and lastly, to furnish it both clothing and shelter, while it is learning to provide for itself, and before it has sufficient experience to warrant it in providing itself a home. These three stages of life are called Infancy, Childhood and Adolescence. There are only two more stages of life, Adulthood and Old Age. Infancy extends over the first three years; Childhood over the next ten or twelve years; Adolescence covers the next seven to ten years. Adulthood or Middle Life extends over about forty years, and the rest of life belongs to Old Age.

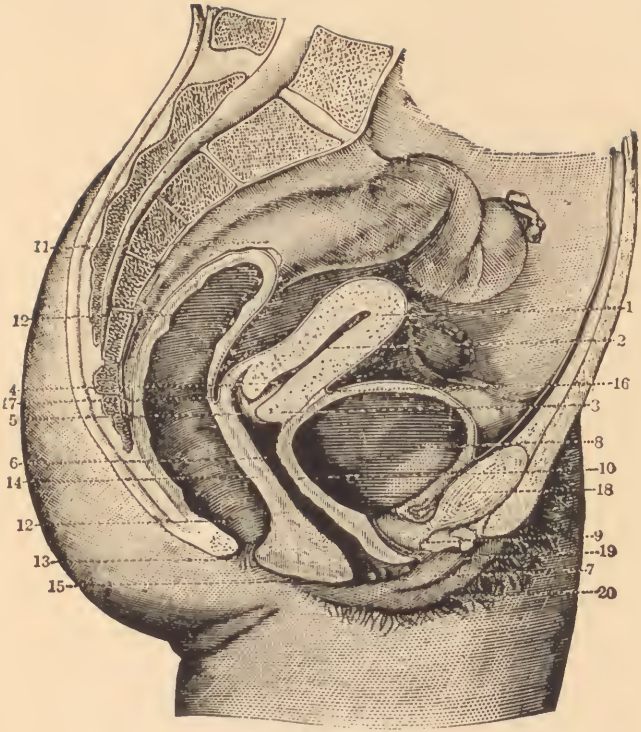
Only the first three periods of life belong to the "growing up" time of life. During infancy the baby learns to feed itself, to walk and to avoid certain dangers, such as touching hot objects or tasting unknown or forbidden things. These lessons the baby learns from

experience. One after another these experiences are met and learned till baby is safe from every-day dangers, and has learned by experience, also, the meaning of many words, and uses from three to five hundred words with which to express his simple ideas.

During the first six years of childhood, the child learns to dress itself, accumulates some experience of the world and learns his place not only in the family among his brothers and sisters, but in the neighborhood among other children, and in the last six or eight years he accumulates much physical strength and agility; such knowledge and mental power as will enable him to enter into the games of his fellows or to earn his living if it is necessary.

Adolescence is that period during which the boy develops into a man or the girl into a woman. An average American boy begins his adolescence about the fifteenth year. Puberty, a period of two or three years, is the first stage of adolescence. During this time, the youth grows rapidly, first in height and muscular development, and then in brain control of his physical being. Between eighteen and twenty-four or five, very im-

portant changes of mind and personality take place. The boy has already acquired most of his height and growth, but there is a wonderful development of brain power. His reason becomes logical, his judgment sound, his mental vision clear. During these years he chooses his life work, prepares himself for it, and makes his start in business or profession. The average American girl begins her adolescence about the fourteenth year. During her years of puberty, she acquires the rounded form of womanhood, the abundant hair and the rosy cheeks of maidenhood. Her mind, too, undergoes a great change. She acquires certain motherly and home-making qualities before unnoticed. Her interest in music and art increases, and she takes delight in decorating the home and ornamenting herself. Later in the period, she, like the young man, chooses her life work and begins her home-building.



THE LOWER ABDOMEN IN A WOMAN

A side view, with the organs cut in half showing the shape and position of the womb in its relations to the other organs.

1. Uterus (or womb).
2. Cavity of womb.
3. Neck of womb (or cervix).
4. Cervical canal.
5. External os (or mouth) of the cervix.
6. Vagina.
7. 19 and 20. Vulva (or external parts).
8. The bladder.
10. Wall between bladder and vagina.
11. The rectum, outer wall.
12. The same, cut open.
13. The Anus.
15. The perineum.
19. Labium minor.
20. Labium major.

GIRLHOOD—ITS PROBLEMS

PART THREE

GIRLHOOD AND ITS PROBLEMS

CHAPTER I

The Evolution of Life

General Biology.—When animal life first appeared upon the earth in its simple one-celled form, it gave as little indication of the perfection of form which we see in animal life today, as the ovum of a human individual of the present time gives of the perfect child which at birth is launched upon life's journey.

Yet this simple life-form of the early ages carried on all the activities of life—eating, digesting, assimilating, excreting and moving—protecting itself, and lastly reproducing itself without the possession of a single organ, and progressed in its development with unerring instinct toward a definite end.

All of these activities, excepting one, are

for the benefit of the individual who exercises them, and may be called *egoistic activities*, but the last and crowning effort, reproduction, is a personal sacrifice of the organism, but serves a higher purpose, the good of others, the perpetuation of the race. This activity may, therefore, be called *altruistic* (for others) or *phyletic* (for the race).

Egoistic Activities.—As the term implies, egoistic efforts are directed toward the self (or ego), and include all those activities for the support, protection, defense and development of one's self. As illustrated in the plant organism, the taking of nourishment from the air and soil, the development of the stem, branches, roots and leaves are egoistic activities. In the lower animals, the eating, sleeping, fighting and building of shelter are all egoistic activities, while in man egoistic activities include the first act of taking nourishment from the mother; all the play activities by which Nature develops the nerves, muscles and special senses; a large part of the earning and preparing of food, clothing and shelter; the activities of school and college, which develop the points of

youth, and even the pursuit of pleasure and recreation; the desire for the preservation of life is also instinctive. But there is one instinct as fundamental as these and still stronger, and that is the desire for the perpetuation of the race. For an individual will perpetuate the race even at the sacrifice of life.

Altruistic Activities.—As the etymology of this term suggests, these activities are devoted to the good of others. Herbert Spencer says, "If we define altruism as being all actions which in the normal course of things benefit others instead of benefiting self, then from the dawn of life, altruism has been no less essential than egoism." It is evident that altruistic activities include all activities devoted to the propagation, maintenance and protection of the race.

The most fundamental of these activities is *reproduction.* Every normal living organism, whether plant or animal, possesses the power to reproduce its kind. Some plants produce spores and some produce seeds. The flower represents the reproductive organ of the plant, and its real object is to produce seed.

Animals produce eggs from which the young develop either through a process of incubation outside of the maternal body or analogous process within the maternal body. In the latter case, the young are brought forth as living organisms.

Whether we consider the plant-seed, the animal-egg, or the new-born individual, in any case the parental organism must provide for the *support* and *protection* of the offspring during those stages of development when it is unable to support and protect itself.

The mother plant deposits in or about the seed, sufficient nourishment to supply all the needs of the young plant during the germinating period and until it is able to gain its own support from the soil and air. Consider the amount of food contained in a bean, or a pea, or a grain of corn, and remember how large a plant may grow from a seed planted in moist sawdust from which it gains no nourishment. Furthermore, plants protect their seeds by means of various seed envelopes (thick skin, husks, shells, burrs, etc.) against the cold and moisture of winter.

In a similar way, the young animal is sup-

plied by its parents with nourishment. The young bird is incubated within the egg where a supply of nourishment is provided sufficient to develop the bones, muscles, nervous system, blood, glands and covering. This development is carried to a point that makes the bird able to take from the mother during the early weeks after its release from the shell, such nourishment as the mother may provide. In the meantime, the birdling must be brooded and protected in the parental nest until it is able to provide for its own protection.

The young animal is in a similar way developed within the body of the maternal organism to a point where it is able to perform the principal functions of life. For weeks or months, or even years, according to the class of the animal, it must be supported and protected by its parents. The human young receives milk from its mother's breast and protection in its mother's arms during the first year, after which it continues to receive nourishment, clothing and protection under the parental roof for a period varying from eighteen to twenty years, or even longer.

Young animals are supported and protected because they are unable to support and protect themselves. If they were not thus cared for, the race would become extinct. Now there are some individuals, orphans, for example, who have, through some accident, been deprived of their natural support and protection. If these weaker members of society, not yet able to support and protect themselves, were not provided for, they would perish and thus become lost to the race. From the time of primeval man to the present, these weaker individuals of society, who have been deprived of their natural protectors, have been cared for by the stronger members of society, and afforded such support and protection as they may need to make them independent. In a similar way, the sick and defective members of society are cared for by the strong. Thus we see that the building and maintenance of orphanages, hospitals, asylums and homes are activities that belong clearly to the altruistic group. The mother, the nurse, the doctor and the teacher are following altruistic professions. For, although they derive a support from the work, unless

they keep before them the good of the individual served, and subordinate the idea of financial remuneration, they fail in the work.

The law of compensation.—Why does man till the fields, fell the forest trees, or delve in the earth for minerals? Why does he cultivate domestic animals or build ships? These are all sacrifices that he makes, and apparently with willingness. If we study the problem closely, we see that he tills the fields and cultivates domestic animals for food; that he fells trees to make shelter; that he cultivates certain plants and animals to procure for himself clothing; that he delves in the earth to secure mineral products to use in various industries; and that he builds ships to widen the scope of his activities. It is evident then that the egoistic activities of an organism represent sacrifice followed by compensation. The individual sacrifices in order that he may reap his reward or receive his compensation. It may be stated as a general biological truth, that Nature demands sacrifice or work on the part of all living organisms; and, under

normal conditions, metes out a compensation commensurate with the sacrifice made.

Sacrifice and Compensation in Altruistic Activities.—If one watches an amoeba under the microscope, he may see it move about the field, creeping along the surface of the glass plate, throwing out a pseudopodium or foot, here; drawing in the protoplasm to form a mouth or a stomach, there; taking in and digesting minute plant-organisms; transporting itself across the field of the microscope through the aid of improvised locomotory organs. These activities are all egoistic. The amoeba is putting forth effort to gain sustenance; it is sacrificing energy to receive compensation in the form of support.

If we continue to watch this one-celled organism, we will find that sooner or later it goes into a short resting stage, followed by important internal changes. These changes make themselves manifest, first, at the nucleus, which slowly divides into two equal portions, separating each and carrying with it about half of the protoplasm of the parent. As these two young amoebae lie side by side under the microscope, one naturally asks,

"What has become of the parent organism?" Whereas at first there was one adult amoeba, there are now two young amoebae of the next succeeding generation. The parent organism has sacrificed its substance and its individual life absolutely and completely for this next generation.

It may be said in general that reproduction always involves a division of the parent organism. In the case of the amoeba, the division is into two equal portions. In the case of some of the lower plants and animals, the substance of the parent organism is divided into many equal minute spores or eggs, each of which develops a new organism.

The higher organisms also suffer a division of their body protoplasm. However, instead of dividing into two or more equal parts, and merging their individuality immediately into the next generation, the higher organisms divide off a very small proportion of their protoplasm to make an egg or seed, while the parent organism lives on to produce eggs or seeds on subsequent occasions. While the parental sacrifice in eggs or spermatozoa is minute and inconsiderable in the higher

animals, the sacrifices subsequent to this initial division are incalculably greater in higher animals than in the lower forms. We can cite no better example than the human subject. The human ovum divided off from the maternal organism is a minute globule of protoplasm, almost microscopic in size. The sacrifice of the mother in producing the ovum is inconsiderable, but the production of the ovum is simply the first step in the sacrifice which the mother makes.

The fertilized egg makes a lodgment on the inner surface of the uterus or womb, and begins immediately to absorb its nourishment from the mother. It soon develops heart and blood vessels so related to the blood vessels of the mother that throughout its prenatal life the mother's blood supplies to the growing child all the substance that is built up into bone, muscle, brain and glands, preparing the young child to come into the world, a living, breathing, sentient organism. These draughts upon the vitality of the mother are so great that they frequently result in a very noticeable depletion of the

mother's physical power, noticeable particularly in the depletion of the blood.

During the period when the young child is developing within the body of the mother, she must make other sacrifices: The withdrawal from a society into the seclusion of the home where she spends many days in the preparation of the wardrobe for the expected child; the sacrifice of appearance and bodily comfort; and later the sacrifice of pain at the childbirth. During the first year of the child's life (if it has its birthright), it draws nourishment from the mother's breast,—nourishment which the milk glands make from the mother's blood at a sacrifice of her strength.

During its childhood and youth, the mother prepares the food, clothing and shelter of her child at no small expense of her time and strength. For years, the mother holds herself ready to watch at the bedside of her child should it fall sick, and there is hardly a mother in the land who has not spent many nights in such vigils by the bedside of her child.

All this is maternal sacrifice. Is there any

sacrifice on the father's part? The father's first sacrifice in the division of a portion of his body is too small to be considered, but in his case, as in the case of the mother, the sacrifice continues through a period of fifteen, twenty or even thirty years sometimes, progressively increasing to the last. The sacrifices on the part of the father consist in the support and protection of the offspring, and should begin soon after conception on the part of the mother, when the prospective father, by abstaining from the conjugal relations, and by showing greater care and solicitude toward the mother, protects the coming child and promotes its welfare. The father feels with the mother the anxiety for the sick child and shares her vigils.

We have noted that egoistic sacrifices receive their compensation. Do the sacrifices which are made for others receive an adequate compensation? The compensation for the sacrifice of time, labor and rest is the pleasure of seeing a well-dressed, well-fed child in which the parents take pride, or in removing pain and restoring health to the child, and in the reciprocal love of the child.

Let any young woman ask her parents if they have been compensated for all the sacrifices they have made for her. If the daughter is one who brings pride and satisfaction, whose presence adds sunshine, and whose hand is helpful, the unhesitating reply would be, "Yes, compensated many times over." Ask a mother with little children clinging to her hands, if she is repaid for all the work. Straining the child to her bosom, she answers, "Oh, many times repaid," and yet the child can do nothing but *love*, and in this one thing lies the secret of adequate compensation. Love is the fulfilling of the Law of Compensation. This principle of LOVE OF OFFSPRING seems to be a more or less general one in the whole realm of conscious, living Nature. That a tree could love its young, no one would suggest. That a star-fish could possess such a feeling, no one would be likely to contend. These organisms, while making both egoistic and altruistic sacrifices, are not conscious of them, and therefore receive no conscious compensation.

It seems probable that, if an animal is

conscious of sacrifice, it is capable of being conscious of this compensation which we term *love of offspring*. For organisms, too low in the scale of life to be conscious of either sacrifice or love of offspring, Nature seems to have arranged another scale of sacrifices and compensations, the sacrifice taking the form of contention for possession of the mate, and sacrifice in her support and protection, the recompense being the physical gratification.

Physical gratification may enter to a certain extent, as a factor among higher animals, but the higher we get in the scale of animal life, the less the part played by the physical gratification, and the greater the part played by LOVE OF OFFSPRING. Where the family circle is maintained, or where the community life is highly developed, there may be another consideration at work, which may play a large part in compensating the sacrifices of reproduction. This consideration is the hope on the part of the parents that the offspring will provide support and protection to them when old age renders them unable longer to support and protect themselves.

It is not probable that this consideration plays any great part in determining the procreation in the first place, but that it later becomes a matter of importance, is not to be doubted.

These last-named considerations, however, belong to the egoistic, whereas that of love belongs solely to the realm of the altruistic.

What compensation does the lower form of animals unconscious of sacrifice receive? The conscious sacrifice of higher animals receives a conscious recompense; similarly the unconscious sacrifice of lower organisms receives an unconscious compensation.

It will be remembered that the amoeba did not die, but that it *renewed its youth* in its offspring. In the next, and in every succeeding generation, there is no death, but a rejuvenation; in other words, *immortality*. These lower forms receive, in compensation for sacrifice of individual life, an immortality of their protoplasm. This principle of biology was first discovered and formulated by the great German biologist, Weissman.

The support of the weak and friendless, by strong members of society, is the most altru-

istic form of sacrifice, and has the highest form of reward, namely, the betterment of the society of which one forms a part, and the deep happiness which follows a consciously altruistic sacrifice.

Summary

(a) The propagation of offspring, and the protection and support of the young and defenseless, always involve sacrifice on the part of the parents and the stronger members of the race.

(b) Sacrifice made consciously for the race is, in the natural order of things, compensated.

CHAPTER II

Adolescence

From a biological point of view, reproduction is the most important function of life. Were it not so, Nature would never accept the supreme sacrifice of life for the sake of the offspring.

It would seem probable that a function so far-reaching in its results, so important to the individual, and so vital to the race, would require time for the development, and would be most carefully guarded by Nature. Such is the case. There is an initial period called *puberty*, extending usually from the age of thirteen to the age of fifteen, during which time great changes take place in the whole being of the girl, all with a view to the making and perfecting of reproductive organs.

This period of puberty differs with race and climate, and varies among individuals of the same race and in the same climate. It

can be unduly hastened by social excitement, the early reading of love stories and by highly seasoned foods.

The first menstruation does not mark the beginning of puberty, nor does it indicate that the girl is ready to fulfil her destiny in the reproductive act. At least a year, and often longer, before the first menstruation, the reproductive organs are growing, the child-form is modifying and the mental attitude is undergoing a definite change.

These pre-pubertal and pubertal years mark a crisis in girl life, and are the introduction to the period of adolescence, which extends to about the twenty-first year. These adolescent years are said to be "the grand court of appeal by which weak children are weeded out and only those who have sufficient vitality for life's battles renew their strength and continue their development." This quotation emphasizes the necessity for special care, wisdom and infinite patience toward the adolescent girl, who, with all the physical demands upon her, is also finding her real self and trying to adjust herself to the new point of view.

The first great sacrifice to the good of the race is offered when the girl, during her menstruation period, refrains from those amusements and occupations that interfere with this function. She feels the sacrifice much less if she understands the *great plan of Nature* and anticipates the compensation. If a girl looks upon this vital function as a disgrace and an annoyance, she will not guard it as she would a *sacred gift* which might some day place upon her head the *crown of womanhood.*

Physical changes.—The human being belongs to mammals, and as a member of that class, he has, covering his surface, except on the palms of the hands and soles of the feet, hair follicles which produce the hairy covering of mammals. The distribution of hair upon the human being is the same as that upon an anthropoid ape. Every child comes into the world with a coat of rudimentary hair which is shed at once. At the age of puberty, however, the growth of hair is increased over the whole surface, but especially in the arm pits and over the pubic region. This is a law of biology, that at the pubertal

age, this hairy character of mammals becomes prominent, hence the name puberty.

Bone, Muscle and Gland.—Of far greater importance than the last-named indication, is the rapid growth in height that begins about the thirteenth year, and is usually completed by the fifteenth year. This increase in height is largely due to a lengthening of the thigh and leg bones. There is a corresponding lengthening of arms, and we find the girl is outgrowing her clothes and reaching the stage when her most prominent characteristic is length of leg. The muscles, unable to keep pace with the bone growth, become flabby. It is difficult for the girl to hold her back straight and her shoulders up. She becomes awkward and easily fatigued because of this muscle condition. But the rapidly developing muscles soon regain their volume and tone, filling out the form and giving the roundness of figure indicative of womanhood. The breasts develop glandular tissues, increase gradually in size, and become tender to the touch. Nature is building an apparatus for supplying the future offspring with food.

This increase in muscle and glands can be accomplished only by increased activity of the nutritive processes. The normal girl's appetite is practically insatiable. To accomplish the digestion and absorption of this food material, the alimentary tract, particularly the stomach, is greatly increased in size. To distribute this increased amount of food (blood), the heart also is increased in size and strength. With greater bulk of muscle and increased quantity of food, we have increased oxidation in the tissues. This requires increased respiration, a demand which is satisfied by the rapid growth and development of the respiratory system. The thorax increases in all directions, becoming deeper, broader and longer; the abdominal cavity becomes greater by the broadening of the pelvic arch.

Nature is preparing the girl for an important event; building a room in which a new life may later pass through all the changes from the one-celled egg (ovum) to the perfect child, and receive its nourishment from the mother's body.

The Reproductive Organs.—The ovaries, up to the age of puberty, consist of a smoothly-

lined, oval-shaped organ without any function. At this age, these organs increase in size, then develop and eject eggs. The uterus increases greatly in size, and becomes able to carry on the construction of a new individual.

While the girl of thirteen, who has menstruated, is capable of becoming impregnated and of bearing a child, she is by no means physically ready to perform this function for five years to come, and better for her and the child, if it be seven. The organs have not yet matured, either in size or in strength.

Psychical Changes.—The period of adolescence brings psychical changes as marked as the physical ones. It is a time of mental awakening; of the birth of new emotions, hopes, doubts, fears and passions; a time of impulse and independence, and therefore the time when most of the great things in literature, art and music have been accomplished, when the greatest religious zeal is shown, and the most altruistic views are advanced. If these powers are perverted, they result in such lives as we have all seen,—self-conscious, vain, imaginative, dreamy, love-sick and im-

petuous by turn, in fact, unbalanced lives that are sometimes sacrificed at an early age.

Ancestral Traits develop at this time—psychical perhaps as much as physical—and new mental and moral peculiarities become evident. "It is the final struggle and opportunity to establish the type." The traits of both parents seem to be warring together for ascendancy, and the girl is torn with conflicting emotions which she does not recognize as belonging to her.

Doubt comes in as one of the strongest emotions of the early adolescent period. Doubt regarding things that have up to this time been taken for granted; doubt regarding the soundness of their elders' advice; doubt regarding religious matters. This doubt serves a wonderful purpose, for it drives the young woman to study, to investigate and to prove truth for herself.

Parents would do well to regard this doubting leniently, and to remember, "Doubt need not be sin; doubt is only faith finding its way." It is a time for parent and child to reason together, but not a time for sarcasm or superiority.

The adolescent is not content to accept statements until they have been proven. This is, as Dr. Burnham puts it, "a natural healthy form of intellectual activity."

Religion.—As intimated above, the girl at thirteen, first perceives her relation to society and feels the necessity of proving all things and holding fast only to that which she deems good. She feels inefficient, feels doubtful of the future, is reticent toward those nearest to her. All of these things drive her to find other companions and to look for some superior being who is all powerfull, all wise, and can be counselor in secret. She worships the beautiful. This is naturally the time of religious awakening, the time when a girl, feeling the birth of a new physical nature and the expansion of mental power, feels too the reverence for Nature and Nature's God, feels the soul's awakening and divines her relation to a future life.

Fortunate that girl who can freely discuss these important questions with some wise person who will patiently answer her questions, give respect to her doubts, and help her

to find the light which always shines on truth. It is pre-eminently the time for a religious experience. For here one reaches the parting of the ways.

The proportion of people who become professing Christians after the twenty-fifth year is comparatively small.

Society.—The girl who has always looked upon her boy friends as unemotionally, as upon her girl friends, and who, up to the twelfth or thirteenth year, has been careless of her appearance, now begins to be ill at ease and conscious in the presence of the opposite sex, and seeks to adorn her person that she may be attractive. Her interest in reading matter changes. She now wants stories of young people who are treading the path she is following, but who are farther along. She devours love stories, and imagines herself the heroine. If these books be chosen by an older person who sympathizes with this normal longing for life in its relation to society, and if the books have literary value and be high in moral tone, they will do much to establish high ideals and form fine character. What could be more unfortunate than the

forming of low or mean ideals at this important juncture?

Every girl should have *one inviolable rule* of relation to men—"*Hands off!*" No girl should allow boy or man, other than her brother, father or fiancé, to kiss or embrace her in any way. For a girl to allow a boy or man to put his arm about her is worse than foolish; it is letting down the bars and leads to all sorts of license. A man may have ungovernable passions aroused by such license, and may under such stimulus do that which would never occur to him otherwise, and which both may regret for a lifetime. "Hands off" is the *only safe rule of action* for both sexes. Even engaged couples should indulge in few caresses and allow *no liberties*. It is the only safe way. The greatest objection to the round dance lies in the close proximity it permits two individuals of opposite sex whose passions are excitable. It is a sad fact that many a young man goes from the social dance, which he has enjoyed with his innocent girl friend, to her unfortunate sister whom she does not recognize, but who satisfies the passion which she has aroused.

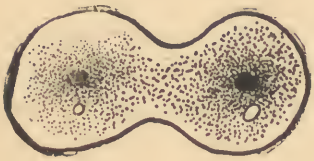
CHAPTER III

Anatomy and Physiology of the Pelvic Organs

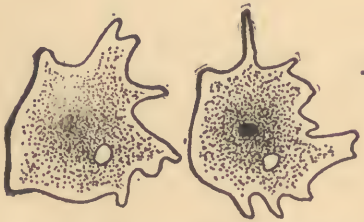
The *pelvic arch*, or the *pelvic girdle*, as it is called, is the bony framework of the lower part of the body, and corresponds to the shoulder girdle of the upper part of the body. The pelvic girdle is composed of three bones, the two innominate bones and the sacrum. The sacrum is a wedge-shaped bone made up of five vertebrae fused together, and being a part of the vertebral column, is naturally located in the back of the body and in the middle line. The innominate bones are articulated with the sacrum on either side in an immovable joint. These innominate bones, —also called hip bones,—present two broad surfaces at each side of the hip, to which are attached on the outside the heavy gluteal muscles which form the seat. The upper edge of the hip bones present a bony ridge, more or less prominent, which may be felt

Parent Amoeba.

First Stage of Reproduction.



Second Stage of Reproduction.



Two "daughter" Amoebae.

Reproduction in the Amoeba.

through the skin and subcutaneous tissues. The inner surface of the innominate bones spreading from below upward, make, along with the sacrum, a basin-shaped and nearly circular bony foundation for the structures which rest upon it.

The two innominate bones meet in the middle line, in front, in an immovable articulation (the symphysis pubis).

Articulated with the lower end of the sacrum is the coccyx. This is simply a chain of three rudimentary vertebrae, the last trace, in the human subject, of a very important organ in lower animals,—the tail.

THE OVARIES

The ovaries of the female correspond to the testicles of the male, and are the sexual glands, that is, the glands which form the sexual cells or ova. The ovaries, like the testicles, are formed in the abdominal cavity in a position considerably higher up in the embryo than they are located in the adult. At about the time of birth, the ovaries pass down to a position in the upper part of the pelvis, which they are to occupy throughout

life. The ovary is about the size of a pigeon's egg, in the adult woman, and is glandular in its structure. It differs, however, very greatly from the glands with which we are most familiar. The salivary glands, for example, are made up of numerous tubules, and the secretion of these glands is poured out into the mouth cavity. The ovary, on the other hand, has no tubules in its structure. Its secretion may be subdivided into two general parts, namely, the external and the internal, whose nature will be described in the following sections under "Physiology."

When the ovaries take their normal position in the pelvis, they are more or less enclosed within the fringed extremities of the Fallopian tubes. These tubes, first described by the anatomist, Fallopius, extend from the uterus, one on either side, out to and enclosing the ovary of that side.

THE UTERUS

The uterus or womb is located in the middle line, and consists of the body and the two Fallopian tubes mentioned above. The body of the uterus is two and a half to three

inches in length, and an inch and a half to an inch and three-quarters in width, seven-eighths to an inch in thickness, and in a general way pear-shaped, with the smaller end down. The uterus is a muscular organ with heavy muscular walls. The cavity of the uterus is in a general way triangular, the base of the triangle being in the fundus of the uterus, and the apex at the neck. From each upper angle of the cavity is an opening which leads into the Fallopian tube of that side. From the lower angle is an opening which leads through the neck of the uterus to its mouth or os. The whole cavity of the uterus, also the Fallopian tubes and the neck, are lined with mucous membrane which is very velvety in its texture.

The broad ligaments hold the uterus in position, in the middle of the pelvis between the bladder and the rectum. As this ligament is a thin fold of tissue, it may become stretched, and thus permit the uterus to be thrown out of its normal position; as the stretching of the ligaments takes place symmetrically as a rule, the displacing of the uterus naturally can either be forward or

backward in the middle line. It may also be displaced downward toward the opening of the cavity. This latter displacement is called a "prolapse." The reason for these displacements is that this organ is in position to receive the weight of the organs of the abdominal cavity. Because of this, if the tissues for any reason lose tonicity, they become stretched and permit the displacement.

THE VAGINA

This term, meaning sheath, is applied to the channel or wide canal which passes from the mouth of the womb to the external organs. While this canal seems to be open, it is not really open, but is unsymmetrical in shape,—the front and back walls coming together. This organ is more capacious at the upper end where it surrounds the uterus than at its external opening. The folds into which its walls are thrown are called rugae, and are Nature's provision to permit a ready stretching of the vagina to an extent sufficient to allow the passage of the child's body at birth. The external end of the vagina is somewhat contracted, and in the virgin is

partly closed by a fold of membrane called the hymen or "maiden head," which extends forward from the posterior wall of the opening. This thin membrane is usually ruptured at the time of the first sexual intercourse. For that reason, it was looked upon as a mark of virginity by our grandparents. However, we know now that it is not a mark of virginity nor its absence a mark of lost virginity. It may be stretched and pushed aside instead of being pushed aside at the first intercourse.

Immediately in front of the opening of the vagina is the exit from the bladder, or in other words, the opening of the urethra. Just in front of this opening of the urethra is the organ which corresponds to the male copulative organ. It is called the clitoris. This organ is partly enclosed by the prepuce which merges backward into the thin inner lips (the labia minora). Outside of these thin inner lips are the thick outer lips (the labia majora). At the age of puberty, the outer lips and the prominence above and in front (the mons veneris) become covered with a growth of hair.

EXTERNAL SECRETION

Ovulation is a term applied to the process of forming and maturing eggs. In the human female, this process begins at the beginning of puberty and continues at more or less regular intervals until the menopause, which occurs in the middle or latter forties. The period of ovulation and menstruation occurs in the perfectly normal case about once every twenty-eight days, so that during a calendar year there are thirteen periods during which ovulation and menstruation occur. (See the chapter on menstruation).

In this process of ovulation, an ovum matures on the surface of each ovary within a follicle called the Graafian follicle. This follicle bursts when it matures and permits the escape of the ovum from the ovary. This ovum, almost too minute to be seen by the unaided eye, usually passes into the Fallopian tubes along which it is carried by minute cilia or hairlike projections of the cells, which by a wavelike motion carry it along the tube toward the uterus, into which it gradually makes its way and through which it is usually carried along with secre-

tions from the mucous membrane of the uterus.

The term menstruation is applied to the monthly flow of blood and mucus from the uterus. Menstruation and ovulation usually occur at practically the same time, though this is not necessarily always true.

If there has been a deposit of male germ cells or spermatozoa in the vagina just before or during the passage of the ovum or egg through the uterus, these spermatozoa are likely to find the egg in the uterus and fertilize it. This fertilization of the egg in the uterus is the beginning of a condition which is called pregnancy, which condition after about nine calendar months, or to be more exact, ten menstrual months, leads to the birth of a child.

Inasmuch as a detailed account of this process is to appear in the next chapter, we will here consider especially the internal secretion from the ovaries.

(b) INTERNAL SECRETION

Reference has been made above to the formation of ova or eggs within the Graafian

follicles and their passage outward through the uterus. This function of the ovary is called the external secretion, but the ovary possesses another most important function, namely, the formation of an internal secretion. The external secretion from the ovary begins at about the thirteenth year in the girl, as explained above under adolescence. At the same time that the ovary begins to prepare eggs and to expel them periodically, it begins to prepare the internal secretion. This substance is so called because it is taken up by the blood, and therefore passes *into* the body instead of *out* of the body.

It is only in recent years that the medical profession has known anything about internal secretions. We have known for ages that the castration of male animals profoundly influenced their development, but it is only recently that we have known the cause of this profound modification of the development. Researches made in several of the laboratories of Europe have demonstrated that the testicles of the male and the ovaries of the female form a substance which, getting into the blood, is carried by that fluid to all

parts of the body, where it exerts a magical influence on the development of the adolescent individual.

If, of two males of the cattle kind, one were castrated at the age of twelve to thirteen months, the natural one would grow into a great, strong, hard-muscled, fiery-eyed, alert, belligerent bull, while the castrated one would grow into a patient, meek, beast of burden,—an ox.

If, of two females of the cattle kind, one were to be subjected to a surgical operation in which the ovaries were removed, that one would grow up into a patient, meek, beast of burden—an ox,—while the natural one would grow up into the typical female of its kind, the cow, possessed of all the fine qualities which mark typical femininity.

In order that a female of any kind shall develop those splendid qualities of femininity which all the world admires, it is necessary that she receive from her ovaries, during all the years of her development, this *magical something*,—the *internal secretion* which passes from the ovaries through the blood to the developing tissues of the body.

Even without the removal of the ovaries, a girl of thirteen or fourteen may produce an unfortunate modification of her development. Nature's plan for the development of her splendid qualities of radiant young womanhood may be defeated, if she habitually plays with these organs. This act is usually called "self-abuse," because it is universally recognized as an abuse of the organs and a diversion of their function from the normal.

This destructive and loathsome habit of self-abuse is occasionally acquired by girls quite accidentally, induced by a local irritation of their organ through irritating secretions. Occasionally it is learned from older, low-minded, vulgar girls who seem to delight in teaching their own bad habits to younger girls.

Whether this habit is learned accidentally or through evil associations, it is in every case not only subversive of Nature's plan for the development of the girl into beautiful womanhood, but it also serves as a serious shock to her nervous system, and *if persisted in, will cause a wreck of that system.*

Fortunately, the number of girls who learn

this habit, make up a very small proportion of girls in general. As a rule, girls are pure and high-minded.

If a girl has been so unfortunate as to have acquired this habit, she will be encouraged to know that *all that Nature requires of her is to quit the habit absolutely.* Nature will then come to her rescue, and within a few months, or at most two or three years, will completely rehabilitate her radiant young womanhood.

CHAPTER IV

Menstruation

Ovulation.—Upon the approach of puberty, the smooth lining of the ovaries takes on a different appearance, and instead of growing uniformly as before, some vesicles of this lining make a more rapid growth than others, and finally, one more active than the rest develops to the size of a hazelnut, and forces its way through the layer of which it forms a part, to the surface lining. By this time, this very active vesicle has grown so large that its walls burst and liberate the tiny egg, ejecting it into the Fallopian tube. It is carried in the tube to the uterus by a current of fluid, the fluid being kept in motion by tiny hairs, or cilia, which line the tube, and by the contraction of the tube itself. If, by chance, the egg (ovum), when expelled, does not enter the Fallopian tube, it becomes lost in the abdominal cavity. The journey of the egg from the ovary to the

uterus occupies from seven to fifteen days. Ovulation, or the discharge of an egg, may or may not be coincident with menstruation. However, ovulation begins with menstruation and ends when individuals cease to menstruate (the menopause). The two ovaries supply the eggs alternately.

Menstruation Proper.—Menstruation is a periodic discharge of blood from the uterus and the Fallopian tubes. It occurs every twenty-eight days, continues through three to six days and lasts during a woman's childbearing period or about thirty years.

Menstrual Stages:

Each menstruation seems to present four stages which follow each other in regular order. Marshall names them, *constructive*, *destructive*, *reparative* and *quiescent*.

1.—*The Constructive Stage.* This is the preparatory period during which time the uterus is made ready for the reception of the ovum by a swelling of the inner mucous membrane caused by the filling up of the veins and capillaries with blood. Just why this happens nobody knows, but the swelling is

so marked that the membrane becomes two or three times its usual thickness. The mucous membrane becomes thick, swollen, dark in color and very soft. Some of the blood passes through the walls of the blood vessels and some escapes by the bursting of capillaries; this passes out together with epithelial cells and continues about a week.

2.—*The Destructive Stage.* The active part of the constructive stage merges directly into this second or destructive stage, during which time the degenerated material is carried off and brings about the menstrual flow continuing five days and merging into the third stage.

3.—*The Reparative Stage* sets in to repair the tissue broken down by the previous stages. This is done by a process of growth from below and continues for about four days followed by the fourth or last stage.

4.—*The Quiescent Stage.* This is the name given to the period of rest which occupies the remaining twelve or fourteen days of the monthly cycle.

The Theory of Menstruation.—Just what causes this flow is not definitely decided,

but it seems certain that there is a relation between ovulation and menstruation; indeed Jewett considers ovulation the direct cause of menstruation, while Pfluger considers that ovulation and menstruation are both brought about by the same cause (the congestion above described), yet independent of each other. Certainly, the thickening of the uterus wall is a preparation for the reception of the fertilized ovum. And when the egg becomes fertilized, pregnancy follows, and the flow does not occur.

Inasmuch as the uterus during the constructive stage is best prepared to receive the egg, it must be for the egg of a previous discharge, for it requires a week or more for the egg to pass from the ovary to the uterus.

The First Appearance of Menstruation.—The menses do not usually make a sudden appearance, but are prefaced by a time of monthly swelling and tenderness of the breasts, a feeling of lassitude often accompanied by a white mucus discharge. It may be several months after the first symptoms before there is an actual flow, which may even then be irregular, appearing one

month and failing for several, then reappearing. After the thorough establishment of the function, however, its failure to appear marks either pregnancy or ill health. The preliminary symptoms may occur as early as the tenth year, and the menses proper appear between the ages of twelve and sixteen. Although there are cases of earlier menses, and of menses delayed even as late as the twentieth year.

Menstrual Symptoms: Menstruation is accompanied by certain local and reflex symptoms. For one or two days before the menstruation, the individual feels a special sensitiveness and nervous excitation accompanied by a feeling of fullness in the abdomen. These symptoms are all relieved by the beginning of the flow.

During the first few days of the period, girls, and women too, are likely to be over-sensitive to slights as well as to work and worry, and are somewhat mentally depressed. The skin shows a tendency to discoloration, and may break out into pimples or fever sores. Owing to the increased weight of the uterus, a feeling of weight may be experienced in the abdomen.

Character of Discharge: The first discharge is composed of blood, mixed with mucus (which gives it a slimy consistency), epithelial cells and a granular discharge possessing a strong odor. During the second stage, the blood is almost pure and bright in color, while the third stage is marked by a smaller amount of pure blood, a re-appearance of mucus, but no epithelial cells. Menstrual blood should not clot.

Quantity of Discharge: It is estimated that the discharge amounts to from five to seven ounces. The more common way of measuring is, however, by the number of napkins used; physicians considering more than three napkins a day, excessive. The discharge usually lasts from three to six days, varying with the individual, but the greatest amount of blood is lost during the first three days.

The relation of Menstruation to Lactation: During the congestive period of menstruation (just before the flow begins), a change is sometimes noticed in the breast glands of women who have not borne children. The nipple becomes erected and congested, secreting a yellowish discharge, the area sur-

rounding the aureole darkens and the veins become prominent. Frequently the condition is scarcely to be distinguished from the breasts of a pregnant woman during the first three months. About the sixth month after the first child-birth, menstruation is usually re-established, eight or twelve months after the second child-birth, and seldom occurs during the nursing period of the third child.

Hygiene of Menstruation:

(a) Physical: This function of menstruation is a perfectly normal one and should be performed with little disturbance to the individual. The organs are, however, gorged with blood, producing a feeling of pressure and the nervous system is sensitive. But a state of nervousness is not natural, and when a girl becomes so affected, it shows that her nervous system is being either overtaxed or irritated, or it may be that her body is inefficiently nourished.

For thirty or more years of a woman's life, her health depends largely upon the proper functioning of the reproductive organs. It is, therefore, of the greatest importance to

allow them free growth and to keep them in perfect health.

Habits: From their earliest years, children should be taught to avoid touching these tender parts of the body. If a child shows a tendency to manipulate the organs, have an examination made to see if there is an adhesion, for either boys or girls may need the help of a surgeon to relieve this condition. If this is not the case, but the condition still obtains, wash the parts frequently and carefully, to remove any collection of secretions, and then try to break the habit before the age of puberty. The mother and daughter should have many plain talks on purity of living. It is not necessary yet to disclose to the girl, sin and its consequences, beyond the fact that these delicate organs are injured by handling; that they should never be exposed nor used for any but Nature's excretory process.

Little children, like other little animals, have all the primordial instincts of the race and will sometimes quite innocently be led into bad habits by suggestion of some "knowing" child. Because of this, children need

oversight in their play; need to play in the open, and would better play principally with children of their own sex, excepting in the family where little boys and girls may not only play together, but may see each other undressed for the bath and so overcome a natural tendency to curiosity.

Keep the girl's body and mind pure and innocent until the pubertal period, and then give her the high and noble view of womanhood; tell her of her destiny, and the sacredness of these developing functions, and the necessity of keeping them sacred to their destined use. Never allow any frivolous references to be made to this function, nor any light remarks to be made regarding maternity, for all the teaching that can be given regarding its sacredness will not eradicate the impression of one ridiculing or slighting remark.

Exercise for an Adolescent Girl: All heavy exercise should be omitted during the menstrual week. Gymnasium and tennis dropped entirely, work should be lightened, heavy sweeping and machine sewing should be avoided, and the daily walk shortened. The feet

should be well protected from cold or dampness. Sleigh rides, skating and dancing parties should be relegated to some other period. Nor should whole baths be indulged in. Local application of water sufficient for daily cleansing is far more hygienic than a bath during the period. An abundance of fresh air is frequently a panacea for the headache and depression.

Sleep and Rest: An extra amount of sleep seems to be demanded by Nature during menstruation, and a girl should not only retire earlier at this time, but ought to stay out of school from one to three days as the case may be, resting the mind and taking extra hours of rest and sleep. The time lost will be compensated by the added vigor acquired through the hygienic treatment of the menses.

Educators attribute the breaking down of high school girls, not to the amount of work done, but to the strain upon a girl's system caused by carrying full work during the menstrual period. Girls should be allowed to be absent two days of every month without making up hours. It is possible for a girl to

study hard right through this period, and show no immediate ill effects from it, but it is likely to show later. For if the nourishment is all called off from the reproductive organs to furnish brain supply and general systemic needs, there sometimes (indeed often) results an atrophied condition of the reproductive organs, and we have a woman who bears few or no children and cannot nurse them, or one who has delicate health through life. For "if the reproductive machinery is not manufactured during adolescence, it will not be later."

Clothing: The feet and lower limbs should be warmly clad; slippers and thin-soled shoes should be replaced by warm boots and all clothing should be loose and free from dragging on the pelvis.

(b) MENTAL HYGIENE: The irritability which accompanies the period should go unnoticed by other members of the family, and any specially irritating circumstances or conversation should be eliminated. The mind might well be kept upon happy topics and enjoyable reading. The girl should be taught that *the condition is not one of sickness but of*

health. The thought that, when setting aside the strenuous life for a time, she rests for future good, will be of great value to a girl.

THE MENOPAUSE: The period of menstruation extends over about thirty years, the menopause occurring between forty-five and fifty. Women who menstruate early, reach the menopause late, while those who begin to menstruate late, are likely to cease early.

The cessation, like the beginning of menstruation, is in general a gradual change. The first symptom of the menopause is irregularity. The flow may cease for a few months, and be followed by months of regularity and another cessation. This irregularity may extend over a few months or even as long as two years. Sometimes there is an excessive flow for months previous to the closing.

The most marked symptoms of the menopause are the accompanying congestions of other than the genital organs, namely, the head, liver and lungs. Women complain of dizziness, flashes of heat and mental depression.

When menstruation was first established, the girl became self-centered, she looked upon

everything in all Nature with regard to its relation to herself (the center); with the menopause, this prominence of the ego is again manifest. If a woman for the first time in her married life begins to doubt her husband's affection, or to suspect her friends, let her bear in mind the fact that she is distorting things, and that it is probable that her point of view is to blame, and that there is really no change in her friends or her husband. Married people who have lived happily together for years, sometimes become estranged during this *time when the woman is abnormal and the man does not understand.*

It seems a pity that men cannot know how much forbearance a woman needs while passing through this Valley of Depression, and that women cannot realize that their suspicions are unfounded, and their viewpoint distorted. Here again, a great faith in God that all is well, will remove mountains of distrust and anxiety, and submerge them in the sea of oblivion. As the preponderance of the ego or self idea causes so much of one's mental discomfort, the antidote is to keep the mind actively employed for others. Take

up some project which is absorbing in interest, but not overtaxing to the body, and whenever self intrudes, set aside the thought with a will, and then forget.

The tendency to accumulate fat after the menopause is marked, but it may in most cases be prevented by restricting the amount of food. Lessen the quantity of food at each meal, or the number of meals, and decrease the amount of sugar and starch, for the system seems to require less food when there is no longer a monthly drain upon the system, and to be less able to use up the fuel foods. Two or three years of self denial in the matter of food, will leave a woman light of weight and young in mind and body, able to engage in years of useful activity.

With the cessation of the flow, there is an atrophy of the genital organs. First, the ovaries, then the uterus, shrivel, and sometimes disappear altogether, the breasts decrease in size, and the individual loses those physical characteristics which are essentially feminine and maternal.

CHAPTER V

The Unmarried Woman

There are girls who plan a "career," and do not look forward to marriage, but most girls hope that they will form an alliance with the man of their choice and enter upon wifehood.

For one reason or another, however, many do not marry, and must plan another vocation in life. This course, while it does relieve a woman of the duties of motherhood, has also many difficult phases and problems not easy to solve.

Woman's Work: In almost every feminine heart there lies the germ of mother-love, and association with children has the power to keep hearts young. To really live with children and enter into their interests is to partake of their nature.

An occupation, therefore, which associates an unmarried woman with children (housekeeper, teacher, nurse, matron, aunt in the

family, governess or mother's helper), develops her maternal side, satisfies in a measure her love for children, and enables her to carry out her destiny in part as she impresses her characteristics upon the young of the next generation.

In exchange for this gain, she must sacrifice a part of her leisure, and often her rest, but she receives in return, the best of all compensations, reciprocated love.

Unmarried women almost universally regret their inability to have children of their own, or even to have children by adoption, because of home conditions, or question of support.

There are, however, many children who may be enjoyed and who will give love in return, if the unmarried woman is willing to make the sacrifice of time, of convenience, of plans, of habits. Children, being alive, make noise; being happy, play and disarrange things; being thoughtless, forget to put things away; but the extra work which children entail is well spent for it keeps one young and sympathetic.

To those who cannot take up these lines of work, there is the Sunday School class, and

the sewing school class, or the opportunity may lie with the children of a neighbor, a friend or a relative. Tired mothers would forever bless the woman who occasionally relieved them of their responsibility for an hour or an afternoon, and children are the sworn friends of any one who gives them a good time; moreover it keeps a woman from growing cynical and selfish. *In thought for others lies the hope of health and happiness.*

Sense and Soul: Sex subjects are not good things to dwell upon. Desire is more psychical than physical, and can be produced or allayed by the thoughts. "We are the sum of our thoughts." Sex desires cannot be subdued by trying to analyze the sensation, but by holding the thought upon some intense subject, by reading some absorbing book, or at night by fixing the mind upon a text and analyzing it. It is of great help to try to grasp the idea of omnipresence, omnipotence, omniscience in God, and of divinity and immortality in man. These thoughts expanded and worked out in detail are big enough to dispel all other thoughts and one is enabled to grasp the truth that she is soul, not body, and

that every desire of the body may be governed by the soul.

Mental Growth: The unmarried woman ought to interest herself in literature, in club work or in philanthropy, to broaden her outlook and to prevent ever becoming an "old maid." Old maidism is a quality, not a condition, and is not confined to unmarried women. It is acquired by being opinionated in sentiments, absorbed in trivialities and centered in self, and is forever banished from the woman who, taking hold of her place in life with a firm hand, lives with a definite purpose to become a part of the life about her. To this woman, universal motherhood is possible.

The menopause is a trying time to the unmarried woman. She feels that her youth has slipped away, and with it the dreams of home and family, and she may be inclined to rail at fate for depriving her of a woman's right. It being a time of introspection, she is tempted to indulge in thoughts of self and loneliness, and succumb to depression, and only a stern determination to rise above egoism, and attain to altruism will give her the poise which she needs.

To dwell upon the unattainable with regret is but to invite unhappiness, while to accept the inevitable with philosophy is to secure happiness. To look for truth and grow up to it; to look for opportunity and grasp it; to look for love and find it; this is the privilege of the unmarried woman.

CHAPTER VI

The Wife

Girls or young women are by nature drawn to the society of young men. It is right that they should have this privilege, and any condition which robs either sex of the companionship of the other is abnormal. The choice of these companions is a matter for great care. If the young woman numbers among her acquaintances no young man whose standards command her respect, she would better go unattended and without escort than to accept the attention of unworthy men.

A girl cannot afford to lower her own self-respect or lay herself open to insult. The power to enforce the single standard of morals—the white life for two—lies in the hands of young women who must forever lay aside the thought that a young man who "has seen life" and "sowed wild oats" is safe company, an eligible partner or a desirable husband. As she has kept herself pure and unspotted from the world; as she has

never allowed the caress or the kiss of any man, *she may well demand the same of him*, and when she chooses her life companion, let her see to it that he is bringing to her what he demands of her, namely, purity.

The girl in her relation to young men must so comport herself as to command their respect, for while young men will be free with girls, if permitted, will take advantage, if allowed, and will apparently enjoy the society of such girls, no self-respecting girl would enjoy the remarks which these same young men make regarding them when they are in the presence of other young men.

When the time comes that a man offers a woman the highest and best he has to give, and chooses her from among all his friends to be his mate, it is not a matter to be lightly considered nor treated as a joke. It will be well to think before the answer is given. Will he make a good husband? Will he make a good father? Will he be the kind of man to whom children may look for a good example? Is he worthy of love? Here, too, love is the fulfilling of the law. Marriage is Nature's plan, the family is the foundation

of society, but the failure or success of married life depends not upon the institution of marriage, but first upon the choice of companion made, and afterward upon the forbearance and good sense exercised. That there are so many truly happy married people, and so many delightful homes, proves the possibility of living happily and building many more such homes.

The Choice.—Having made the choice of a husband, what is the right deportment between an affianced pair? If the engagement is to be a long one, the meetings should be infrequent. In any case, there should be a very limited amount of caressing even after the engagement. If it is desired to retain the affection, and to receive the most good from the relation, self-denial must be exercised. Caressing leads to dissatisfaction or danger. It does a girl no good, and it makes the man's battle for purity a harder one to fight. Many a girl's downfall has come through this avenue of fondling between engaged people, and many a man has failed to keep his promise of marriage to a girl because she has yielded to his importunities.

Preparation for Marriage.—When the maiden has promised to become a wife and is looking forward to home-building, she collects her linen, both plain and fine, if she can; she makes as dainty personal apparel as her time or purse will allow. Let her also go into training for the real business before her.

Marriage is a partnership to which each brings a share of the investment. The man puts in the earnings of his time and ability, and the woman, to be an equal shareholder, must put in economy and skill in using the funds. A careful buyer gets much more for the money expended; a skillful cook gets more nourishment from the materials bought, and a competent housekeeper prevents waste in every part of the house.

When a man invests in a home, he ought to have as well-ordered a home as the money expended will provide. It may be ever so simple and exceedingly plain, or it may be one of wealth and beauty; it still ought to have at its head a wife who will see that it is well-ordered.

If a young woman cannot learn practical housekeeping at home, she ought to take

THE CHILD IN THE WOMB

BEGINNING OF LABOR*

*This is before the birth canal has become dilated. The thick convex or neck of the womb is shown opening at right angles into the long vagina. In the front of the vagina is the bladder; behind, the rectum.

definite lessons in domestic science and the care of children, as a part of her preparation for marriage. Many young women are now taking lessons at college or in schools of Domestic Science and Arts as a part of their training for home-making.

It is unfortunate that custom has placed such a burden of preparation upon the prospective bride in collecting the elaborate trousseau, and in filling the many pre-nuptial social engagements. Fewer clothes and better health, fewer social functions and longer hours of sleep would make the chances of happiness greater.

It is of paramount importance that both husband and wife should be in a physical condition to be patient and happy. Tired people, people with nerves, seldom are patient, happy ones. The way in which the first difficulties are met often decides the future for good or ill. It, therefore, behooves the wife to enter upon the marriage relation with everything in her favor as far as planning and self-denial will accomplish it.

The Marriage Relation.—After the marriage ceremony a new era begins. The girl who

has up to this time thought first of self has many hard lessons to learn which only a great love for her husband can master. The wife's first thought should be for the happiness of her husband, and many personal preferences and pet idiosyncracies have to be laid aside by both parties in this adjustment of two people to one life. Without prudery, the little delicacies of life should be observed, and caresses and words of love between husband and wife help to feed the flame of love. Every wife owes it to her husband to become the willing mother of his children. A girl has no right to marry unless she is willing to be a mother. A middle-aged woman may marry a middle-aged man, if she loves him, and be a companion to him and a stepmother to his children. But a young man has a right to fatherhood. To a girl who has been properly taught regarding the sacredness of life, and who has thought of child-bearing as a matter for pride and joy, the wifely relations will be accepted with innocence and pleasure, providing the husband is generous and thoughtful.

A wife might well be free from child-bearing

the first year of her married life, while she is becoming adjusted to changed conditions. The tendency to pregnancy is greater just before, during and immediately after the menstrual week; therefore, the wedding day would better be set for the week in the middle of the menstrual month. Even then, one is not immune from pregnancy, abstinence being the only sure preventive of pregnancy.

The mental attitude of the mother at the time of conception should be one of joy and willingness, so as to impress the child with nobleness of character. It is impossible to tell how many perverted children of upright parents are the result of tempestuous, hateful thoughts at the time of conception.

If happiness is to be retained, no one, however dear to her, must be allowed to come between husband and wife. What transpires between them must be a sealed book to everyone else. *Little difficulties or peculiarities cannot be the subject of conversation between the wife and anyone else on earth.* A very small affair when made the subject of discussion may grow to large proportions. A husband's little shortcomings ought to be

protected from other's eyes as one hopes to have her own weaknesses overlooked. *A thing overlooked is forgotten.* A thing discussed with an outsider forms a barrier between the two vitally concerned.

The young wife may well avoid the first contention and yield a point, or even two points, and nine times out of ten a generous impulse comes also to the man who wants to yield his share. There is no danger of strife when the *first quarrel* is avoided.

CHAPTER VII

The Mother

The Story of Life.—As soon as the girl begins to ask questions as to her origin, so soon should the subject of motherhood be presented. Children develop so differently that no rule of age can be relied upon as a guide to the time. One child will ask at four years, "How did I come to be here?" while another will seem not to have thought of his origin before seven or eight.

Whether he asks or not, the parents should place some information in his hands, at six, and more at ten years, for invariably the average child of ten or eleven will have received information from someone by this time, and it is of immense importance that it should come first from his parents.

The way in which the subject of Life,—its origin, its function, its powers,—is presented will determine the child's whole mental attitude and affect his entire life. If procreation

is looked upon as a joke, conception a shame, manhood a thing to be wasted, and motherhood a thing to be avoided, the whole warp of life becomes distorted and no beautiful fabric can be woven upon it.

The first step toward motherhood should be taken when the girl, wondering whence came this life, goes to her mother with the query, "Where did I come from?" and the mother, filled with the spirit of love, tells her the story of life. How shall it be told? Always truthfully, always reverently, not all at once, but finally something like this: "You came from God. He started you as a tiny egg, an egg almost too small to be seen, and this egg grew in mother's body. At first mother did not know it was there, but one day she felt something moving inside, and she knew God was making her a baby. It took God almost a year to make it, and all this time mother ate a little more, and slept a little more, and stayed more in the air, so that she might feed and rest this little one and give it good air to breathe. It grew and grew until she could feel its little arms and knees pressing against the outside walls of her body. And

one day when the little child was perfect, it was born." "Did it hurt?" asks the little girl. "Yes, but mother was so glad to have a little girl that she forgot all about the hurt and was just happy."

Circumstances must dictate how much of this story shall be told at a time. If the child begins to question when very young, it may be a year or two before it gets the whole story; on the other hand, the occasion might be such that it would be well to tell it all at once. If a child does not ask questions, an opportunity should be made to present the subject. The coming of a baby into the neighborhood, or into the family, is an excellent time for the story, and it should be given to boys as well as girls.

Thus far there is no hint of fatherhood, and scarcely need be until the child is ten years old. That seems very young, but statistics show that the majority of ruined boys and girls begin to go wrong before they are eleven years of age. One must watch for the psychological moment, and when it comes, the duty must be done without flinching. How? The way must be deter-

mined by the circumstances. For example, a mother has always talked freely with her boy and girl, and the way is free between them. If the daughter comes some day and says that the girls talk about those things in a mean, vulgar way, the mother need not be shocked, but by asking questions enough to keep up the interest, she will get some new, and it may be, startling information. Then is the time to tell the child that those powers of which she speaks are for fatherhood and motherhood, and for nothing else, and that they must be kept sacred to that use, and never lowered to any other level. A boy may be told that he must wait until he has grown to full manhood and has chosen a woman to be his wife; must wait until she is his wife and must take his first best powers to her. As he expects his wife to be pure to him, so he must see that all other girls are (as far as he is concerned) kept pure, and that he gives *purity to the one of whom purity is asked.* The girl may be told that the eggs which grow within her can never develop until they are fertilized (just as the kernels of corn are fertilized by the

pollen from the tassels), and that this is done by physical contact of the male and female sex organs which is allowable and sanctioned only between people who love and are married. If the girl cites the case of some unfortunate girl who has become a mother, she may be told that girls sometimes come to sorrow by first allowing boys to be free with them in an innocent way, which freedom is increased until sin enters in. She ought to know that the only safe way to follow is the rule, "Hands off."

One should stop reverently when approaching the holy ground of motherhood, where the miracle of creation is being wrought, where the forces of Nature are working together to build a human body into which will pass in some mysterious way a portion of the divine spirit which makes it a living soul.

Preparation for Motherhood.—Nature has provided for the continuance of the race by making the act which results in impregnation a pleasurable one when desired by both parties to the act. Where love and purity of thought are the accompaniment, the offspring may

say not "in sin" but "in love" did my mother conceive me, and there might be many immaculate conceptions and many children born into the Kingdom of Love.

The thing of greatest importance to the mother is the welfare of this embryo child, and she must consider this embryo a living child from its first conception to its birth, remembering that anything done purposely to kill this germ is the actual taking of a life; that any wilful disregard of her own health as in late hours, tight clothing, the use of alcoholics or narcotics, is taking the risk of robbing another individual of his right to be well born and unhandicapped in life's race.

Embryology.—The development of the child within the uterus of the mother represents a chapter in the life history of every individual so important in its relation to maternity and paternity that every young woman, yes, and every young man, should be acquainted with at least its general features.

As stated in the chapter on Reproduction, every living organism begins life as a single cell, or globule of protoplasm, called the ovum.

When this ovum reaches the finished state, which is called "maturity," it leaves the ovary, and is carried along the Fallopian tube into the uterus, where, if fertilized, it usually finds a lodgment in the upper part or fundus of the uterus. The cell from which each child begins its development, is formed by the fusion of two cells or globules of protoplasm, one furnished by the mother and called the ovum, or egg; the other furnished by the father and called the spermatozoon. The egg is very much larger than the spermatozoon, and contains enough yolk material to afford nourishment for the embryo for a number of days.

Once the minute ovum has been caught in the projections of the velvety inner surface, this thick velvety lining of the uterus in the neighborhood of the ovum begins a rapid growth, gradually enveloping the rapidly expanding ovum.

Within the ovum there are taking place some of the most marvelous changes in the whole life history of the individual. The nucleus of the fertilized egg, and the protoplasm which surrounds it, divide into two

cells, then into four, eight, sixteen, etc. These divisions follow each other in such rapid succession that there are many hundreds of cells by the end of the first twenty-four hours. These cells soon begin to arrange themselves into layers and groups which step by step develop the different tissues and organs of the body.

By the end of thirty days, the little embryo about as large as one inch of the end of a lead pencil, would be recognized as the embryo of some mammalian animal, but it would be quite impossible to say whether it would develop into a human being or some other animal, if it were seen quite apart from its immediate surroundings. By the end of another thirty days, however, the little embryo has multiplied its size several times, and reached a form instantly recognizable as the young of the human kind. It still, however, retains the vestige of a tail, which within the next thirty days will have been completely absorbed. The little two-month embryo has projecting from its abdomen a large structure called the umbilical cord, and it is that which joins the embryo to the mother. The large

stalk of this cord passes upwards from the body of the embryo, merging into the structures in the top of the uterus, and the little branching structures passing from the base of the uterus. These are loops of blood vessels and they form part of the placenta or "after-birth." Through this cord the embryo receives its nourishment from the mother. The blood of the mother bathes these loops of blood-vessels, and the embryo absorbs from the mother's blood the nourishment which builds its bones, muscles, brain, spinal cord and glands. From the same source the embryo receives the oxygen necessary for the maintenance of life.

From the third month on to the end of the nine months, the amount of material which the mother must provide for the development of the child within her uterus amounts to no small draft upon her physical resources. It is not at all uncommon for a mother in the later months of pregnancy to become quite pale, her blood having been impoverished to provide material for the development of the child.

The date at which to expect the child can

be found, approximately, by counting nine months from date of beginning of last menstruation, and adding six days; for example, the last menstruation began on the 10th of January, the child may be expected on October 16th.

During the period of gestation, the mother makes her sacrifice in many ways; the father, too, should make a sacrifice—that of continence, for one year—the nine months of pregnancy and the three months following. *All other animals observe this period of continence,* and Nature demands that man observe it in common with other animals. Man is the only animal that has transgressed this fundamental law of Nature, and *Nature always metes out a retribution for transgression.* Sexual intercourse may sometimes (but rarely) cause an abortion or miscarriage. In any case it is an extra drain upon a woman's nervous energy, and is believed by some to be the cause of deformities and other abnormalities in the unborn child.

Hygiene of Pregnancy.—The mother's thought during the months of embryonic child-life should be for the child, and no

question of appearance of personal gratification should be allowed to interfere with the child's growth, or any false modesty deprive it of its rights to fresh air and good health.

Clothing.—So much depends upon the child having room in which to grow, that the matter of clothes for the mother may well be considered first. The combination underwear does away with the harmful belts and bands which constrict the form. Such garments might well be worn all the time, but especially during pregnancy, this garment, together with the chemise or a combination under-waist and skirt, would be all that is needed under the pretty empire gown. The empire gown disguises the form, depends from the shoulders, and gives the abdominal cavity freedom to expand.

Corsets should have no place in the pregnant woman's wardrobe. Indeed anything that presses down upon the abdomen is likely to displace the uterus and so interfere with the growth of the unborn babe.

A displaced uterus makes impregnation difficult, increases the danger of miscarriage,

and decreases the chances of the child for a good start in life.

Air.—The unborn child holds much the same relation to the mother as the diver in his diver's suit holds to the world, and is as dependent upon others for his air supply.

The child gets his air supply from the mother who must secure enough oxygen for both, if she would have the child well nourished. Oxidation of the food which one gets is dependent upon the oxygen supply, and only that food which goes through the process of oxidation can furnish energy for use of the organism. There must be oxygen to assist in the development of tissue, and oxygen to dispose of waste materials. Impure air—air lacking in oxygen—clogs the system, just as insufficient draft—lack of oxygen—deadens a fire. Outdoor air is pure air, rich in oxygen. Indoor air that has been breathed is impoverished and vitiated.

Food.—What shall the mother eat that will keep her well nourished and at the same time build a new organism?

The mother hen, when preparing for the coming of her little ones, places around the

embryo, within the egg-shell, all the material needed to make a chicken. The shell is porous enough to admit a sufficient air supply. The egg, when it leaves the mother-body, contains the germ, albumen, oil, mineral matter, iron, sulphur, etc., and water. After three weeks of warmth, the shell breaks and out walks a complete and perfect chicken, while everything else has disappeared. The food materials have become bone and muscle, nerves and blood-vessels, hair and feathers.

The bean or pea-mother, when preparing for the coming of her little ones, places about the embryo, starch, vegetable albumen and mineral matter, sometimes sugar and oil, and when heat, water and air are added, these substances are transformed into a new plant of the mother's species.

The nut-tree mother puts the food for her offspring, oil, protein and mineral matter within a shell which, like the egg-shell, must burst to allow the growth of the young tree, and within this shell is placed all the nut-plant needs except the air, water and heat.

The mammal mother secretes milk to

sustain her young until the offspring is able to get food elsewhere.

These natural foods, which have the power to build the tissues of the young of plant and animal kind, are the logical foods for the woman who is building a new individual within her own organism; eggs, milk, nuts, beans, peas, peanuts for tissue building; oils, fats and starchy foods, for heat and motor energy; fruit juices and green vegetables for the mineral salts, with great quantities of water. The child not only needs water for its growth, but also water in which to float during its prenatal life. The mother, too, needs water for her own digestion and assimilation, and water to keep the body sewage system flushed.

Prospective mothers must use an abundance of fruit juice and of laxative foods, as well as an abundance of water, to keep the body free from poisons. No mention has been made of meat, which is a tissue builder, because of the uric acid which it contains. If one can live comfortably without meat, by using the above-named tissue builders instead, it will avoid many complications. If, however, a

woman is pale and anaemic, she would do well to use some lean meat for the iron it contains. Foods in their simple form are best for both mother and child. For example, a meal of bread and butter, with a soft boiled egg and a glass of milk is far superior to a piece of cake made from the same amount of flour, egg, milk and sugar, because of the greater difficulty in digesting and assimilating the cake.

If the pregnant mother is troubled with nausea, her stomach will often retain an egg lemonade, or an egg-nog, and keep up her strength until the nausea passes away.

More should be eaten by a woman when pregnant than at other times, but care should be taken that the work of elimination through skin, kidneys and bowels is freely carried on. Inasmuch as milk contains no iron, and as the baby's first year's diet is solely milk, the mother must give her baby a year's supply of iron, and if she would avoid impoverishing her own system of iron, she should eat abundant quantities of green vegetables—spinach, chard, beet greens, lettuce, celery and green onions—whole milk and eggs.

Sleep and Exercise.—Pregnant women usually feel the need of an extra amount of sleep, and should yield to the demand; it is Nature's call. Even if one does not feel sleepy, she should spend long night hours in bed, and should try to find a time for a daily rest. This relaxation is of great benefit to the nervous system, and helps the mother to bear the extra drain upon her strength.

To "lie around" a good part of the time, however, is prejudicial to the good health of both mother and child. The mother who goes about her daily task, keeping up her activity and her interest in things, will keep her muscular system toned up and ready for the work to be done at childbirth, and will give birth to a stronger, more active child, other things being equal. Gymnastic exercises, lifting heavy weights, reaching high above the head and jumping, are things to be avoided.

Should there be a discharge of blood, even slight, at any time during the pregnancy, the prospective mother would be wise to go to bed for a time and avoid the danger of losing the precious life. Every precaution should

be taken to carry the child to maturity. It is harder for the mother to have a miscarriage than to give birth to a child at full term. *Any effort to destroy a human embryo is an effort to take a life, and is a crime.* As for any fear of childbirth, that should never be entertained for a moment. If one does all she knows to be healthy, and keeps a cheerful mind, the chances are all in her favor, and with a competent doctor and nurse, there is no cause for anything but trust. Pain there will be; it may be pain that amounts to agony, but it will all be forgotten in the great joy, the overwhelming love that envelops the mother when she clasps her child to her bosom, and she is ready to say "All this, and more, for the sake of the child, the husband and the home."

Mental Hygiene.—The time-worn theory that a mother "marks her" child by thinking of dreadful shapes and looking at frightful objects, has been discredited by medical authorities. Abnormalities of form, and the arresting of mental development, are usually the direct result of a failure of that particular part of the child to receive nourishment.

The connection is sometimes broken by fright or accident, or fits of temper. A calm frame of mind, the absence of anger or sulks, will be the best preventive. A mother may well keep herself in spiritual communion with the Creator who has chosen her as a co-worker with Himself, and think of this as a holy time when she has an unseen child whom she can love and serve by being happy and sweet, and to whom she may thus give a better equipment for life.

CHAPTER VIII

The Baby

When a woman is honored with the promise of motherhood; when there is placed in her care a human being to train for usefulness in life and fitness for eternity, there is opened to her a new world of happiness, a new field of usefulness.

With the first knowledge that the promise of seed is to be fulfilled in her, the mother-heart sings the universal song of joy. Physical reasons often prohibit an exuberant rejoicing, but every child must be welcome. It is his birth-right. Even though the nest be already filled to crowding, and one's means are taxed to provide for one more, there must still be a welcome. If a child is not desired, no opportunity should be allowed for conception. After the child is conceived, the mother must rejoice and be glad, for the sake of the child upon whom ineradicable impressions are being made.

When baby comes, the question of government begins. Shall the child's unreasoning will guide the household, or shall he be ruled by a reasoning mind which will decide questions on the basis of merit?

If baby becomes a tyrant and governs the whole household régime, it will soon come to be a very uncomfortable household, and baby himself will be neither well nor happy.

The child comes into the world with no habits, good or bad; even during the first few days, the first habits are acquired, so the desired program should be begun early.

A young baby needs letting alone as much as he needs anything. Indeed, that is the one thing to which he is accustomed. He wants to sleep and eat, and he wants very little else.

The Bath.—After the first cleansing bath, the child may be oiled with olive oil, and for the first two weeks, instead of a daily soap and water bath, the oil baths may be continued, using water for such parts only as become soiled. From this time on a soap and water bath may be given once a week with fresh water bath on other days, using

soap for soiled parts only. As the child grows older, more frequent baths may be given, but an infant's skin does not need soap oftener than once a week.

In hot weather, one or two tepid water baths a day are cooling and refreshing. As soon as baby comes out of the bath tub, wrap him in his canton flannel square while he is being wiped or patted dry with soft towel.

Put the band and diaper on then, under the shirt, place the other garments together and put them all on at once, that the child may not be fatigued with much handling.

The bath is best given in the morning, long enough before a feeding time so that he may be bathed, dressed, and then fed and laid in bed for a three hours' sleep. This arrangement makes the nine o'clock bath hour a good one.

Wash the face with clear water, keeping the body covered until ready for it; then wash ears and head with soapy water, which will prevent the discoloration of the head, which is sometimes seen.

When ready to wash the body, uncover

and wash it a little at a time, if a sponge bath is given; or put the child into the warm water supported by one hand while the other is used to lave it, if the bath tub is used.

The eyes should be washed with a clean bit of old linen dipped into a boracic acid solution, using a clean piece for each eye and burning them after use. The nose may be cleaned in the same way. The baby's mouth should be rinsed with weak boracic acid after each feeding, and the mother's breasts before each feeding.

Clothing.—With what joy the mother fashions the tiny garments which are to be worn by the baby. Into every seam is woven loving thoughts of the coming happiness. Note the following "*Layette*" or Baby outfit. The little one will not need a great many clothes nor very elaborate ones.

4 Longcloth or Cambric Slips,
3 White Flannellette Nightgowns,
3 Pinning Blankets,
2 Flannel Skirts,
2 Muslin Skirts,
2 Soft White Dresses (nainsook, mull, lawn),

2 Doz. Large Diapers,
2 Doz. Smaller Diapers,
2 Doz. one-foot squares of old muslin or linen to fold inside the diapers for the first few days,
2 Flannel or Crochet Sacks,
2 Pairs Booties,
3 Pairs Cashmere Stockings,
2 Flannel Shirts, long sleeves,
A Knotted Comforter, 1 yard square,
A large square of canton flannel to wrap baby in after the bath,
Safety Pins, large and small,
2 Flannel Bands.

One may add two flannel wrappers and as many other things as she desires, but the layette described is enough to keep a baby comfortable and clean.

These garments should all be made to suspend from the shoulders. The skirts and dresses should measure not over three-fourths of a yard in length, and should be ample in breadth. Then with dainty draw strings at neck and sleeves, the child may be allowed to *grow* into "short clothes" instead of being *put* in.

The flannel band is no longer bound tightly around the baby, but is wound loosely and worn to keep the abdomen warm. The new-born baby needs this and the flannel shirt at any season, but as soon as the baby becomes accustomed to its new environment, it is unwise to keep a baby swathed in flannel in a temperature of 90 degrees or more. If a baby continues to fret in hot weather, or to have heat rash, it would be wise to lessen the amount of clothing. On a very hot day, a band, a diaper and a slip are clothing enough for any but a new-born baby. One need not hesitate to change the clothing with the changes of temperature; that is a matter of common sense.

The nightgowns should be very long, and secured at the bottom with a draw string so that the feet may be protected. A sleeping bag made of padded cheese-cloth, tied above the shoulders, down the sides and across the bottom with tapes, will so securely protect the child that he cannot throw off the clothes and catch cold. This precaution alone will give the mother hours of comfortable sleep.

Air.—If his serene highness comes into the

world in winter time, care must be taken to keep his room well aired and free from the products of combustion. No oil stove or gas stove should be allowed in the room unless provision is made to carry in fresh air and carry out the products of combustion. The windows should be open when baby (protected from drafts) takes his naps. If he comes in the summer time, he can very soon be put out of doors to sleep, and then he can perhaps sleep out all winter if the weather is not too severe.

A baby cannot thrive without a good deal of fresh air, and it is better if he can have it without the motion of the carriage than with it. If the conditions are favorable, he can lie in the carriage on a porch or by a window where he can be observed from within by his care-taker.

Sleep.—Twenty hours of sleep out of the twenty-four are not too many for the new-born baby. It is essential that the baby should observe night and day and have the four waking hours in the day time. If he seems inclined to turn night into day, he may be kept awake during the day for a time,

so that he will sleep at night, and after that he will presumably sleep regularly at night.

If he takes his last feeding at ten o'clock at night, he can easily wait until six in the morning for his first morning meal. After a feeding, he may sleep another three hours. Should he waken and cry, a bottle of hot water will warm and comfort him, yet it will not induce a habit of eating at night, and he ought soon to sleep the whole night through.

Food.—As the little chicken during its prenatal life eats the "egg," and the new-born calf takes the mother milk, so should every human offspring have mother's milk for its sustenance. Everything that a baby needs in the way of food is contained in this natural food. No matter of convenience, or pride, on the mother's part, should rob the baby of this inherent right, and love ought to make it a pleasure to feed the child from the mother body. Mother's milk has the advantage of being always warm, always sterilized and nearly always well balanced. Nothing else will quite take its place.

The free use of water and mild fruit juice

together with good nourishing food will sometimes increase the quantity of milk. If the milk is too rich in cheese qualities and constipates the baby, try nursing from both breasts at each feeding instead of alternating; that will sometimes correct the difficulty. If, on the other hand, the milk is not rich enough, it may help to nurse only one breast at a feeding, allowing the milk of the other breast to remain over an extra period.

The mother's frame of mind may also affect the milk. A fit of anger or violent excitement, or of crying, may actually poison the milk, while the opposite frame of mind conduces to its high quality.

For the first few days, the child needs no real food, but should be given the breast six or eight hours after birth, when he will draw from them a laxative which carries off the substance that fills the bowels. This may be repeated every four hours until the milk comes.

On the third day, the milk enters the breasts, and then the baby must be fed every two and one-half hours. After two months, every three hours is often enough. These

hours should be adhered to with religious regularity.

The hours for nursing may be decided upon and nothing should be allowed to interfere with them. Many doctors advise against waking a child to feed it, but others and many practical mothers find that if a child is wakened for its feeding at a certain time, it will form a habit of regular sleeping and eating.

Crying on the part of the child before the time for feeding is not always, in fact, not often, an indication that the child needs food; sometimes it indicates that the last feeding did not agree with it, so that even crying should not induce a change in feeding hours.

If, after feeding, the baby be held over the mother's or nurse's shoulder until the "wind" comes up, it will usually prevent colic. If colic follows the feeding, it may be helped by laying the child across the knee, face down.

When the mother's health will not permit the child to take mother's milk, the best substitute is cow's milk modified. The prin-

cipal constituent of cream is oil, which supplies heat and energy, but does not make tissue; the principal constituent of skimmed milk is protein, a tissue builder. This makes it evident that diluted cream will not take the place of whole milk. Constipation can sometimes be relieved by adding a greater proportion of cream to the milk.

Cow's milk is too strong for a young baby, and it should be diluted about half and gradually increased in strength as the baby grows, but this modification of milk is so individual a thing that it has often to be directed by the physician. One ounce of milk per day is enough for a new-born baby up to one month; eight 2½ oz. feedings may be given at 2 months; eight 3 oz. feedings may be given at 3 months; six 5 oz. feedings may be given at 10 months; six 7 oz. feedings may be given at 12 months.

Most babies at this age can take whole milk. Some provision for iron may be made at ten months by dividing a yolk of an egg among the six feedings for the day. Even as early as three months, prune juice may be given for constipation, and at six months,

orange juice in small quantities between, not with, the feedings.

If these precautionary methods do not prevent constipation, and olive oil given in small quantities and rubbed into the abdomen fails to give relief, a regular daily evacuation of the bowels must be secured by an injection of warm water and castile soap, given at a regular daily hour until the habit is formed.

Babies can be trained not only to eat regularly and to sleep regularly, but to evacuate regularly.

PERSONAL HYGIENE

PART FOUR

PERSONAL HYGIENE

CHAPTER I

Diet

It is proposed in this chapter to outline, very briefly, a few simple rules of hygiene, the observance of which will tend to bring the young man and the young woman into the highest possible state of physical development and robust good health. Assuming that one wishes to lead the white life, the observance of these rules will make that much desired condition more easily attainable.

Choice of Food.—The young person who is boarding at a restaurant, or in a boarding club, can modify the diet only within the range of the menu provided. Fortunately, the most important rule of diet can always be observed; that is, to eat abstemiously.

Wherever one is boarding, one can eat temperately, and avoid highly spiced foods, tea and coffee. The observance of these simple rules will go a long way towards insuring health and happiness. It has been discovered, by the study of the influence of diet upon sexual appetite, that the heavy eating of rich and highly spiced foods, indulgence in stimulants and narcotics, all tend to excite the sexual desires, in the woman as in the man.

Narcotics are those drugs which cause narcosis, or a dulling of the senses, and a decreased activity of both the muscular and nervous system.

One of the most common and typical narcotics is opium. Derived from opium is morphine. Cocaine belongs also to the narcotics, as do the anaesthetics, such as chloroform, ether and common alcohol.

So the young person who would develop a clear-thinking brain and a sound body must leave alcoholic beverages alone. Furthermore, the young person who would have absolute control of the sexual desires must leave alcohol alone, for the first thing that alcohol does is to throw down the lines of

control. It is under the influence of alcohol that the young man is almost sure to make his first visit to the house of prostitution. If a girl lose her virtue, it takes place in a majority of cases when she is under the influence of alcohol. But for this influence lessening her control, she could not be seduced. Hence one of the requirements of chastity *is* TOTAL ABSTINENCE.

In so far as tobacco is a narcotic, in just so far does it disarm and put to sleep those aesthetic and moral impulses which are so helpful in the maintenance of the chaste life.

The dietetic control of the bowels.—A most important hygienic rule is to maintain a strict regularity of the bowels. By regularity of the bowels, we mean a free, normal passage of the bowels at least once in twenty-four hours. Two or three passages in twenty-four hours are not too many.

A tendency towards constipation may be hereditary. The writer finds that at least one case in four of persistent chronic constipation seems to be due to a hereditary tendency.

Those individuals who have from early

infancy and throughout their whole lives suffered from a tendency to constipation, and perhaps from actual chronic constipation, find it exceedingly difficult to produce normal, regular daily movements of the bowels. Whether constipation is chronic or occasional, or whether it is hereditary or acquired, in any case it should be corrected, if possible, through modification of the diet, and of daily habits.

First of all, one must remember, in this connection, that the lower bowel or rectum is subject to education, and not by any means the least important factor in overcoming a tendency to constipation is the regular morning visit to the water closet.

The author would discourage the habit, which some have, of "straining at stool." This act of straining at stool, together with the pressure which the hard fecal masses make on the blood vessels, increases the blood pressure on the veins of the rectum to such a high degree that it is likely to cause hemorrhoids or piles. But if the position favorable to the passage of the bowels be taken regularly every morning, and a reasonable time spent in that position, and if the

daily passage is brought about at the time, the muscles of the rectum will be educated to the point of contracting upon its contents at that time and under those conditions regularly, and this will be a strong factor towards regulating the movements of the bowels.

But the most important thing to consider in this condition is the dietetic regulation of the bowels. There are some foods that tend to constipate, while others act as a laxative. Such foods, for example, as contain a considerable portion of tannin, are always constipating. Strong teas have a constipating effect, particularly such as the bitter English breakfast teas, in which there is a very large proportion of tannin. This large percentage of tannin accounts for the prevalence of constipation among female tea drinkers.

If one then, who is annoyed by a tendency to constipation, wishes to correct it, a rational change of diet would be to eat freely of cereals and coarse bread and of various fruits, particularly apples, figs and prunes.

The most effective way to eat these laxative fruits is to eat freely of them just before

retiring. The apples and figs may be eaten just as they are received from the market. Prunes may be soaked in cold water for twenty-four hours, and then taken directly from the cold water and eaten.

If this is not effective, a supplementary régime may be adopted that is only in part dietetic, that is, to rise ONE HOUR BEFORE BREAKFAST, drink two glasses of cold water, and take a brisk walk of fifteen to thirty minutes. The cold water has a tonic effect upon the stomach, preparing it for a rapid digestion of the breakfast. It also washes out the accumulation of mucus in the stomach, which may easily equal a pint in volume. This pint of mucus, plus the pint of water, making a quart of liquid altogether, pours through the pylorus, and during the rapid walk works its way rapidly down through the alimentary tract, washing the whole tract and preparing it to receive and rapidly digest the next meal. This slimy water, having washed out the stomach and small intestine, then passes into the large intestine, moistening and lubricating its contents and causing it to move gradually toward the rectum, where

it stimulates a normal free passage of the bowels after breakfast.

Any usual case of constipation will yield to this treatment. Such a treatment is incomparably more rational than the taking of medicines.

The Dietetic Control of Sleep.—Most students study evenings. If their heavy meal is a dinner at 5.30 or 6 P. M., they are likely to feel very drowsy by 7.30 or 8 o'clock. This is a perfectly natural experience, all animals manifesting a drowsiness after a heavy meal. If you could lie down and sleep for an hour while your dinner is digesting, you could probably rise at 8 o'clock and put in two or three hours of good hard work. You would find yourself at 11 or 12 o'clock so thoroughly awake, however, that you might have difficulty in getting to sleep if you retired at that hour. If, on the other hand, you have dinner in the middle of the day, and a light supper at night, you will be able to begin studying within an hour after supper, and keep it up until ready to retire. In this case also, you are likely to be so wide awake at the time of retiring that

you may have difficulty in getting to sleep. In either of these cases, it is altogether proper and advisable to take a light lunch before retiring. A double purpose can be served by this lunch. In the first place, the taking of anything into the stomach that requires digestion tends to deplete the circulation from other organs (brain in this case) to the stomach. In the second place, the food may be so chosen as to exert a definite somnolent effect. Such foods are celery, lettuce, onions, warm milk. It may not be convenient to get warm milk at midnight, but it would hardly be inconvenient to provide one's self with two or three Graham crackers and a stalk of celery. These with a drink of water ought so far to divert the circulation from the brain as to enable one to fall asleep quickly.

The Dietetic Control of the Kidneys and Skin.—The stimulation of excretion, through the kidneys and skin, may be an exceedingly important thing, particularly if one has just caught a cold and wishes to establish free excretion. The food which has a most clearly marked effect upon both kidneys and skin is

the juice of the citrus fruits. These fruits, as they appear in our markets, are lemons, oranges and grape fruit. All of these fruits are in a high degree wholesome as an addition to the dietary. Lemon juice is far more wholesome than vinegar in salads. The juice of lemons and oranges makes most refreshing and deliciously cooling drinks in summer, and on occasions where one wishes to get a stronger stimulation of the kidneys and skin, he has only to drink large quantities of hot lemonade.

The Dietetic Method of Curing a Cold.—A whole quart of hot lemonade may be taken on retiring after one has caught cold. The effect in such a case would be to cause a free sweating and copious urination. Both the action of the kidneys and the skin would tend to carry away from the system the materials that have been retained as a result of the cold.

It is hardly necessary to add in this connection that care should be taken that during the sweating or immediately following it, the body should not be exposed to catch more cold. In this method of treating a

cold, one should take a strong cathartic, such as two or three teaspoonfuls of castor oil, and should remain in bed twenty-four hours. During this twenty-four hours, no other food than a little light broth should be taken. This treatment usually completely breaks up a cold, and one is able, in two or three days, to make good the loss of the twenty-four hours, during which time he was confined to his room.

This dietetic method of caring for an acute catarrhal cold is incomparably wiser and more economical than to drag around, hoping to "wear out the cold" only to be worn out by it.

CHAPTER II

Baths

The Bath for Cleanliness.—Little need be said regarding the bath for cleanliness, except that it should be taken at least once in a week during the colder portion of the year, and perhaps as frequently as once a day during that portion of the year when there is free perspiration.

Where one is bathing for cleanliness, one may well use soap and warm water over the whole surface of the body. If you take this bath just before retiring, it is not necessary to take a cold shower or sponge at the end of the bath. If, however, you take a warm soap bath in the morning, the relaxing effect of the bath upon the skin makes it necessary to take a cold shower or a cold sponge after the warm bath in order to secure the tonic effect upon the skin, and fortify you against catching cold.

During the hot weather, when one may

bathe daily for cleanliness, you should guard against an excessive use of soap, as a daily soap bath may have a tendency to remove the oils from the skin so completely as to make the skin rough. With the daily bath for cleanliness, it is possible that warm water and soap need not be used more frequently than once or twice a week, and that a laving of the whole surface with cold water, followed by a vigorous rub down with a coarse towel, may serve the double purpose of insuring absolute cleanliness, and at the same time serving as a skin tonic.

In this connection, the author would emphasize the importance of insuring absolute cleanliness of the sexual apparatus. In primeval conditions, less attention was necessary, as these organs were more or less exposed, but the present method of dress is such as to permit the accumulation of the skin secretions. While these may in part be removed by the friction against the clothing, it is advisable to wash the genitals and all neighboring surfaces as a regular part of the daily toilet.

The Tonic Bath.—In warm weather, when

one takes a daily bath to insure cleanliness, at least five of these baths each week may be in cold water, sufficiently cold to secure the tonic effect as described above. In cold weather when one takes not more than one or two warm soap baths a week, the cold tonic bath can be made to serve a most important purpose in the hygiene.

Some have followed the custom of immersing the body completely in a tub of cold water. This method of taking the cold bath is not to be recommended, except for those who are in the most robust health, and in these cases, so vigorous a treatment is not necessary nor particularly beneficial. The author has seen many people who were injured by this method of taking the tonic bath.

There are two methods to be recommended: Those who have access to a cold shower may stand for a moment, and for a moment only, under the cold shower, then step at once upon a warm rug and rub the whole surface of the body vigorously with a dry crash towel until the whole surface of the body glows with the warmth of the reaction. If you do not

have access to the cold shower, you may take a most effective tonic bath in your room, using cold water, the coldest obtainable, with sponge, or even a wash cloth, dipping the sponge into the cold water, then pressing out enough of the water so that there will be no excess of water to run over the surface of the body from the sponge. Begin by sponging face, neck, shoulders, arms and chest, then wiping these parts dry, subject them to vigorous friction with the crash towel. While the upper half of the body is receiving its bath, the lower half may be kept covered, and conversely.

This tonic bath should be taken immediately upon arising in the morning, and as a part of the morning toilet.

If one takes such a tonic bath on arising, then dresses hurriedly and takes a brisk walk of fifteen or twenty minutes, the régime quickly brings the body into the most vigorous and robust state of health; unless there is something wrong with the digestion or the excretion, and even moderate derangements of these will in all probability be corrected by the régime just suggested.

CHAPTER III

Exercise

Incident to the above topic, mention has been made of the brisk morning walk before breakfast. This has a most salutary tonic effect besides the influence that it exerts upon the bowel movements. Not the least important results of this morning exercise depends on the fact that the lungs are repeatedly and completely inflated with the pure out-of-door air. This naturally exerts a most valuable influence upon the development of the lungs in the youth, or the maintenance of their vigor in middle age.

This increased heart action is also advantageous as it tends to hasten circulation through the muscles, glands and brain. This hurrying blood current not only carries nutriment to these organs, but carries away their accumulations of effete material to the excretory glands.

The reader must be cautioned not to

overdo this early morning exercise. A set of tennis, a mile row, or any other strenuous exercise, is strongly to be discouraged at this time of the day. If one overdoes morning exercise, one is likely to feel somewhat depleted and fatigued throughout the remainder of the forenoon, and the ability to do a high grade of mental work is decreased rather than increased.

Besides the morning exercise, every person, who wishes to live a vigorous physical life, should have from one to two hours of heavier exercise during the latter part of the day or evening. This exercise may take any one of many forms. It may be golf, tennis, rowing, swimming, skating, basketball, cycling, horse-back riding, cross-country hikes, track or gymnasium work. The order in which these sports are mentioned is a matter of no importance. The immediate results of this exercise should be largely to increase lung and heart action, and to cause a sufficient fatigue of the muscular system so that rest is sought and may be followed by dreamless, recuperative sleep.

It might at first seem paradoxical that to

build up strong muscles, we must first fatigue them, but that seems to be Nature's plan. The only way to build up a strong physique is to use that physique, and use it to near its maximum capacity.

If one exercises thus, freely, and eats abstemiously, one ought not to lay on fat. If you do lay on fat, you may know that you are eating more than you need, and you should make your diet more temperate. The young person of eighteen or nineteen, who is tall and rather spare, and whose muscular system has not reached its full development, may increase weight through muscle growth or fat deposit. The latter should be avoided, and the former encouraged.

Not by any means the least important thing accomplished by physical exercise is the association with one's fellows incident to the exercise. The courage, nerve control, quick judgment, agility and strength required in an athletic game make no small part of our equipment to fight the battles of life. The conditions of these games give frequent opportunities for the young person to cultivate the fine spirit of honesty and fair play.

CHAPTER IV

The Hygienic Requirements of Sleep

The personal hygiene of sleep is by no means an unimportant topic, though it may be briefly treated.

The amount of sleep that each individual requires and should take, can only be determined by the individual. Some seem to require ten hours, others eight, others six, while rarely individuals are found who seem to thrive on even so little as five hours of sleep out of twenty-four. The average requirement seems to be about eight hours. If one has, by experience or experiment, determined the amount of sleep required, one should so plan the daily régime that that amount of sleep is secured. While a brief departure from this régime may be without serious results, any prolonged departure from it will certainly bring its natural retribution. The young person having determined how much sleep is needed, should adopt a daily

program that will provide for just that many hours in bed, and should early establish the habit of going to sleep at once upon retiring, and of arising at once upon awakening. Dallying in bed has led many a young man or woman to lapse into habits of thought and of action that are in a high degree deleterious, morally and physically.

So far as one may choose the equipment of the sleeping apartment, a hard bed should be chosen and a cover as light as possible and yet be comfortable.

One should never retire with cold feet. A most effective way to warm the feet is to dip them for a moment in cold water, and then rub them vigorously with a coarse towel until they glow with warmth. Furthermore, no more effective remedy for habitual cold feet could be devised than this nightly tonic bath.

A pair of warm bedroom slippers will add greatly to comfort, and decrease largely the danger of taking cold. These should always be worn during one's excursions to the bath room, and during the tonic sponge bath.

As to posture in bed, it has been proved

by experience that the most comfortable posture, and the most hygienic one, is to lie upon the side. The right side is to be preferred to the left, because, in this position, the heart being on the upper side is not embarrassed in its free movement by the superincumbent lung tissue. Furthermore, this position facilitates the passage of digesting foods from the stomach. To maintain comfortably this side position, requires that the knees be at least moderately drawn up. This posture, when asleep, is practically identical with that of nearly all higher animals, and is unquestionably the most hygienic one for man. No animal but man ever lies upon its back unless it is dead. Furthermore, the dorsal position puts tendons, nerves and muscles on a stretch, while the flexed lateral position puts these in a more or less relaxed position, which is more favorable to rest.

It goes without saying that sleeping rooms should always be thoroughly ventilated. The occupant should take care not to lie in a direct draught from a window or door, because it has been found by experience that one is less likely to catch cold, if he sleeps

out of doors, than he is if he sleeps in a direct draught from a window or door. Just why this is, has not been satisfactorily accounted for, but the fact remains. So, if you must sleep in the house, secure perfect ventilation without direct draughts.

CHAPTER V

The Control of the Thoughts

There is no more effective safeguard for the person who wishes to lead a clean life, than the control of the thoughts. It goes without saying that the person who thinks about sexual matters, especially the one whose imagination runs riot upon all kinds of sexually stimulating images, is only inviting temptation to relax one's standards. If one controls the thoughts during those times when one is less amenable to temptation, one is far more likely to be able to control the acts at those times when the physical condition makes one most amenable to temptation.

The most effective way to control the thoughts is so to plan one's work as to insure the complete occupation of the mind with affairs that are wholly independent of sexual experiences or considerations. One should set a mark for oneself so high above his

present position that he is compelled to put forth strenuous and unremitting efforts in order to accomplish his aim. The old saying, that "Satan finds work for idle hands to do," is all too true. Anyone may observe the influence of idleness, or even the influence of a partially occupied program, upon the habits of children and young people. Beard and Rockwell, in their valuable work on this subject, say: "Go to work; develop your muscles and brain; resolve to become at least useful, if not famous. The activity which will be necessary in carrying out these ambitions will divert the mind from imaginary evils, if they are imaginary, and will be one of the best means to cure the real ones."

EUGENICS

PART FIVE

EUGENICS

(Brief Outline Only)

CHAPTER I

Outline of Eugenics

There is no subject about which young people contemplating marriage should be more *sincerely and seriously interested* than this subject of Eugenics. The word "Eugenics" means "well-born." One's first thought on this subject naturally concerns the heredity. However, *to be well-born concerns environment almost as much as it does heredity.* We will, therefore, consider this subject rather systematically; first, as to certain general considerations; second, the part played by heredity; third, the part played by environment; and fourth, laws or rules of Eugenics.

General Considerations.—Biology, now so

widely studied, both in colleges and high schools, has revealed to the world and impressed it upon the conviction and consciousness of the whole thinking and reading world, first, that man is an animal; second, that this animal, *man, obeys the same laws in his physical and mental development that other animals obey;* hence, third, the laws of heredity, as carefully worked out for mammals, hold absolutely for the mammal, man; fourth, such conditions of life as food and shelter and association with others of his kind (environment), profoundly influence the development of the human individual as it does that of the mammal in general.

Much attention has been devoted, during the last few decades, to the breeding of domestic animals, and it has been found that every species responds readily to the care of the breeder. Horses, cattle, sheep, hogs, as well as other domesticated animals, and even plants, have been so greatly improved within the last generation or two, that their value to man has been at least doubled.

This improvement, through breeding, is accomplished through a very careful choice

of mates; in other words, through a control of heredity on the one hand, and careful feeding, shelter and association on the other hand. The breeders say that *they are able, in a few generations of any species, to emphasize any desired quality, simply through the influence of these factors named above.* For example, if the breeder wishes to produce a breed of cattle in which the cows are large producers of milk, they have only to choose for the mothers of the desired breed, the best milkers, and for the sires, males begotten from the best milkers. Determining thus the heredity, and specializing the environment, half a dozen or ten generations of such breeding will produce a strain of Holsteins, for example, commercially worth, perhaps thousands of dollars each for breeding, and the cows, commercially worth a hundred dollars or more, simply as milk producers. On the other hand, Herefords and Durhams may be modified by breeding and feeding to produce the best grade of beef cattle.

So in the horse kind, breeders have produced draft horses, roadsters and race horses, emphasizing any physical or temperamental

quality at will, through strict adherence to the laws of breeding.

A few years ago it was simultaneously discovered, by a number of prominent people of the country, that *our government and some of our States are spending millions of dollars for the improvement of domestic animals that possess a commercial value, while nothing was being expended to improve the human race.* A few extremists thought that the same measures could be adopted for the improvement of the human race as have been adopted so effectively for the domestic animals, but this is *not the view of the extremist only.* Thoughtful, conservative people believe that much may be done profoundly to influence our race without seriously disturbing the social order. The two influences which will probably be most effective are *education and restrictive laws.* The education will influence young people in the choosing of their mates, while the restrictive laws will *debar certain individuals from marriage.* Statistics show that in every State there are many hundreds, if not thousands, of imbeciles, degenerates, criminals, insane, idiots, etc., begotten in lust and

squalor while the parents were inebriated or semi-imbecile, insane, degenerate or criminal. As this generation of *human débris* becomes a charge on the State, seriously complicating social, political and economic conditions, it is the *universal belief that the State has a right to interfere in the propagation of such individuals.* The only difference of opinion is just how the State may most wisely exert its recognized powers in the matter.

CHAPTER II

Heredity

The Part Played by Heredity.—Naturally, heredity exerts a profound influence upon an individual, and while environment exerts perhaps an equally profound one, still no adequate discussion of Eugenics can be made without going into considerable detail regarding heredity.

In order to explain the operation of the laws of heredity, it is necessary to explain *the begetting of a new life.* As you know, a new life is begotten through the fertilizing of an egg, produced by the maternal organism, by a sperm cell produced by the paternal organism. While the egg is relatively large and non-motile, and the sperm cell is relatively small and possesses a remarkable motility, the essential element in both the egg and the sperm cell is the nucleus. The nucleus of the egg and the nucleus of the sperm cell are the same size, and, separated

from the accompanying cell substance, cannot be differentiated one from the other.

In the process of fertilization, the sperm cell enters the egg yolk through the yolk membrane, and the two nuclei, called pronuclei, gravitate toward each other through the yolk substance, finally fusing with each other within the yolk substance. Immediately after this fusing of the two nuclei, the process of development begins, and we say *a new life has been begotten or conceived.*

Of the essential material, the father furnishes the same amount as the mother. *In a wonderful way,* which we described in detail under Reproduction, the bit of living matter which comes from the father is so intimately mixed with the egg nucleus, that each furnishes exactly half of the nuclear material which becomes a part of each cell of the body. *Thus, every organ, tissue and cell of the new body, possesses a minute bit of material which came from the father, and an equal amount which came from germ-plasma of the mother,* Through this minute bit of matter, the development of the organ, tissue or cell is determined.

As we study the laws of heredity, we find that the sum of the hereditary traits possessed by individuals came equally from the paternal-ancestral line and the maternal-ancestral line. We also find that *the two parents exert, individually, one-half of all the hereditary influence*, while all the preceding ancestors exert the other one-half of the hereditary influence. The four grandparents will, therefore, exert one-fourth of all the hereditary influence, while the preceding generations of ancestors will exert the other one-fourth. In a similar way, the great-grandparents, eight in number, will exert one-eighth of the hereditary influence, and all preceding ancestors will exert one-eighth, and so on back through the generations.

If the question arises, how much influence does each parent, grandparent and great-grandparent exert on one's heredity, the answer is an easy one. If the two parents exert one-half of the hereditary influence, each parent will exert one-fourth of this influence. Further, if the four grandparents exert one-fourth of the hereditary influence, each grandparent will exert one-sixteenth,

while each of the eight great-grandparents will exert one-sixty-fourth.

The writer has heard people pluming themselves on being able to trace ancestry back to William the Conqueror. This great hero of English history lived about thirty generations ago. *In that generation*, each one of us possessed over one million converging lines of ancestry, each one would, therefore, exert *about one-billionth part of the hereditary influence.*

The parents and grandparents, therefore, exert together three-fourths of the hereditary influence and a very large part of the environmental influence, so *we don't need to do much worrying about what happened previous to the great-grandparents.*

However, we must recognize that certain family traits are passed down many generations in some families. This is probably due to the fact that they are valued traits of which the possessors are conscious and proud. These traits are cultivated in each generation, and there is not infrequently a more or less conscious determination or choice of mates, with some reference to this same trait.

Should this mating between families that possess certain valued traits take place through three or four generations, it goes without saying that *the accentuation of this trait becomes very marked.*

According to the Mendelian theory of heredity, so carefully worked out by Mendel, and *now universally accepted*, a trait, as for example, color, is likely (almost certain) to be passed down according to the following law: In guinea pigs, when a black male of black line of ancestors is mated with a white female, from a white line, their progeny will be *one-fourth black, one-fourth white and one-half mixed.*

It is very interesting to note that a trait like imbecility, that has been transmitted through several generations, and, therefore, may be taken as a fixed hereditary character in that family, is transmitted, according to the Mendelian law, to progeny when the imbecile is mated with an individual whose family is free from this trait. *Out of eight children, we would, therefore, expect two imbeciles, two normals, and four more or less defective ones.*

CHAPTER III

Environment

The Part Played by Environment.—The surroundings or conditions under which the life is developed, begin at the hour of conception, within the maternal uterus. *Every life is profoundly influenced by the conditions to which the mother is subjected during her carrying of the young life.* These conditions concern especially the nutrition of the developing life, so if the mother's nutrition is seriously interfered with during her pregnancy, the child is certain to show some mark of this interference with the mother's nutrition. This influence may make itself shown in various ways. There may be an impairment of physical development, taking the form of an arrest or retardation of physical development, or arrest or retardation of mental development, *or both physical and mental.* The conditions to which the infant is subjected during the first two or three years of life *also*

profoundly influence the course of development. The discipline, training, associations, nutrition during early childhood, during the preadolescent period, and even during adolescence, also profoundly influence the course of development of the individual.

While it would be impossible, through environment, to develop mentality in a born imbecile, it is *altogether possible, through bad environment, to develop habits that will wreck the life in an individual whose heredity may be of a high order. In a similar way,* it is possible through environment largely to overcome hereditary weaknesses, and greatly to strengthen hereditary advantages.

Let no young pair establishing a home, lose sight of the importance of environment in the development of their children!

CHAPTER IV

Positive Eugenics

By the expression "Positive Eugenics," we mean conditions that accentuate desirable qualities. There are naturally two phases to this, namely, *the hereditary and the environmental phase of Positive Eugenics.* Physical and mental qualities which are advantageous and strongly to be desired, may be cultivated and trained environmentally, and may be chosen in the mating, and in this way, if also cultivated and trained in the offspring, become gradually accentuated with each successive generation.

Education plays a very important part in this Positive Eugenics. It plays its part in a double way. First, through causing the individual to take pride in the desired character, and cultivate that character, through leading the individual instinctively to be drawn and attracted toward mating with an individual from a family possessing the same

trait; while, on the other hand, there is a condition which may be called *psychic inhibition*, which tends to cause the individual to hesitate, perhaps, later, to say "No," when this much-prized trait is found not to exist in the family of a candidate for mating.

CHAPTER V

Negative Eugenics

By the expression "Negative Eugenics," we mean the avoiding of the disadvantageous and unfortunate in the development of the individual. There are *certain unfortunate impairments, physical or mental, that should be studiously avoided in the mating of human individuals;* such, for example, as hereditary insanity, syphilis,* imbecility, degeneracy, criminality and chronic alcoholism.

If one of the parents possesses any one of these unfortunate impairments, especially if this impairment seems, evidently, to be inherited, *their offspring will certainly be profoundly influenced by this impairment, perhaps three-fourths of their children being distinctly sub-normal.* If this fact is known to young people, that knowledge will *protect them from*

*For brief discussion of syphilis and gonorrhea see Appendix.

mating with an individual that is the victim of any of these impairments. The victim of the impairment, however, perhaps because of the impairment, is very likely not to experience this inhibition, and may be ready to mate, either in wedlock or out, and to produce offspring. *Here is where the State should interfere,* and every individual who possesses these serious impairments should be *prohibited, in some way, from transmitting this unfortunate impairment to another generation.*

When we remember that a normal individual, born of a defective parent, may transmit to some of his children, even though married to a normal person, the ancestral impairment in small or great degree, *this fact should lead every young person to inquire carefully into the family history of individuals with whom the question of mating may arise,* and though that individual may himself be free from impairment, if he has an imbecile brother or sister, and a syphilitic or epileptic father, *the mating with that individual should not for a single moment be considered.* If young people knew these facts, it would not be necessary for the statutes, or for parental authority, to

interfere in the mating. This important trait of *psychic inhibition would cause any love that may have been awakened in the early meetings of two individuals to die out* and be wholly destroyed as soon as the family history becomes known.

* * * *

The authors believe that the only way to improve and purify the conditions of today is by such a *system of sexual education* as suggested throughout the pages of this book, beginning with the little children in the homes, telling them the *true story* concerning the great truths of life, rather than fiction, such as the "Stork Story," which, sooner or later, will prove false in the minds of the children, and will influence them to look to others for the knowledge they *should get from those nearest and dearest to them*, those who, through the plan of Nature, *gave them life*, and who *should also teach them* the great truths of life, in order that they may live up to the plane of the ideal, and *so live up to the best that is in them*, not only for their own welfare and happiness, but that the influence

of their lives may be for all that is good and holy, through all time and eternity. Surely, lives *so precious* when they are children, *should be protected by such knowledge* of the great truths of life as will prove to be the *greatest safeguard* for them all along the journey of life.

This book goes forth to the world, in the hope that the great fundamental truths of life herein set forth, may be to humanity a *foundation of truth* on which the present and future generations shall build such lives of *true and noble manhood and womanhood* as were designed by the Creator, when, as the Bible tells us, "God created man in his own image."

It is the hope of the authors that these great truths *may become universal knowledge*, and so be a part of the very lives of the young children while still at mother's knee, and while under the father's care and influence, and throughout the sojourn of life, helping them to fight bravely and heroically the battles of life, especially the *sexual battles*, and winning, with the "sword of sexual truth," those *victories over self and passion* that will help

wonderfully in doing their part to *work out their destiny in harmony with the design of Nature's God*, through obedience to the laws of Nature and the laws of the Creator, respecting the highest form of animal creation—MAN.

APPENDIX

Venereal Diseases are three in number, *chancroid*, *gonorrhea* and *syphilis*. These diseases are contagious and are transmitted from one person to another by actual contact, either of the person or of some article of clothing or of some towel, drinking glass or other utensil used in common. These loathsome diseases are for the most part caught from prostitutes by young men who live unclean lives consorting with lewd women. If the young man is not cured before he is married, he is practically sure to transmit the disease to his wife.

Chancroid is a disease of the sex organs which is very loathsome and temporarily disabling, tho it is not a blood disease and runs a short course.

Gonorrhea is a contagious inflammation of the mucous membrane of the sex apparatus, —urethra in the man, vagina in the woman, —it is caught in sexual intercourse with a diseased person. Prostitutes or girls leading a life of shame, become diseased and in turn

spread infection to many others. This disease is very difficult to cure. If not promptly cured it may cause sterility or rheumatism in either man or woman. This disease is the occasion of several serious conditions which may require surgical operations in the woman.

Syphilis is a contagious disease in which the germ lives in the blood or lymph. The tissues which are most affected are the skin and the nervous system. Loathsome ulcers appear on the skin in the third stage of the disease which comes after the first year in cases not effectively treated. Degeneration of nerve tissue also comes in the third stage. Such serious and incurable diseases as locomotor ataxia and syphilitic insanity are among these conditions. Syphilis is very difficult to cure, but may be cured if treated promptly and skillfully. Serious impairments known as *Hereditary Syphilis*, may be transmitted from parent to child.

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